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THE IMPACT OF AN EDUCATIONAL TELEVISION SERIES, AN EXPERIMENTAL STUDY.

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DESCRIPTORS- *EDUCATIONAL TELEVISION, *AGRICULTURAL RESEARCH PROJECTS, SEX DIFFERENCES, *CHANGING ATTITUDES, *ADULTS, *LEARNING, URBAN POPULATION, RURAL POPULATION

THE OBJECTIVES OF THIS STUDY WERE TO DISCOVER WHETHER THE DOCUMENTARY TV FILM SERIES, "COUNTY AGENT," HAD APPEAL FOR AND IMPACT UPON A GENERAL AUDIENCE AND WHETHER A SIGNIFICANT RELATIONSHIP EXISTED BETWEEN THE METHODS OF PROGRAM EVALUATION USED. THE TV SERIES, BROADCAST OVER WKAR-TV, CONSISTED OF 13 PROGRAMS ABOUT PROJECTS SPONSORED BY THE AGRICULTURAL EXPERIMENT STATION. ITS PURPOSE WAS TO INFORM AND INFLUENCE ATTITUDES IN FAVOR OF AGRICULTURAL RESEARCH. IN THE EXPERIMENT, 120 ADULTS VIEWED 2 SAMPLE PROGRAMS FROM THE SERIES, ONE ON SOIL TILLAGE AND ONE ON HUMAN NUTRITION. THE SUBJECTS WERE DIVIDED BY SEX AND PLACE OF RESIDENCE INTO SIMILAR GROUPS OF 10. THE SUBJECTS WERE TESTED BEFORE AND AFTER VIEWING. LEARNING WAS MEASURED BY CLOZE PROCEDURE (SENTENCE COMPLETION), ATTITUDE SHIFT BY THE SEMANTIC DIFFERENTIAL (EVALUATIVE SCALES OF GOOD-BAD AND NICE-AWFUL). THE WKAR-TV PROGRAM ANALYZER MEASURED PROGRAM APPEAL AND EVALUATION OF SEGMENTS WITHIN EACH PROGRAM ON A LIKE-DISLIKE SCALE. THE DIFFERENCE IN PRE- AND POSTTEST SCORES REVEALED SIGNIFICANT LEARNING FROM BOTH PROGRAMS IN ALL SUBJECT GROUPS. ANALYSIS OF VARIANCE REVEALED NO SIGNIFICANT DIFFERENCES AMONG SEX AND RESIDENCE CATEGORIES. SIGNIFICANT POSITIVE ATTITUDE SHIFTS OCCURRED TOWARDS CONCEPTS CONTAINED IN THE PROGRAMS. NO RELATIONSHIP APPEARED BETWEEN RESULTS OF THE SEMANTIC DIFFERENTIAL AND PROGRAM ANALYZER EVALUATIONS. (MS)

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in cooperation with

The Agricultural
Experiment Station

THE IMPACT OF AN EDUCATIONAL TELEVISION SERIES

by

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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THE IMPACT OF AN EDUCATIONAL TELEVISION SERIES

An Experimental Study

by

I. R. Merrill

WKAR-TV RESEARCH REPORT 573M

April, 1957

in cooperation with the
Agricultural Experiment Station

Department of Television Development
MICHIGAN STATE UNIVERSITY
East Lansing

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PREFACE

The need for information in the field of broadcast educational television is so urgent that the researcher is under great pressure to mount his horse and ride away in all directions. Few, if any, of the troopers can pull off this maneuver. On the other hand, to always charge off only in the direction of basic research is folly. To always ride after short-range objectives is suicide.

One alternative is a carefully planned campaign, in which the capture of several short range objectives prepares the way for the approach to the final objective. In the case of this Study, 573M, the critical terrain lay in the area of action research. To succeed at all, the study had to provide evidence for the research consumers as to whether the series County Agent could reasonably be expected to have an impact upon the general viewing audience. But before this objective could be accomplished, an improved approach to program evaluation had to be developed and demonstrated to be adequate, one which would throw light on the dimension of desired attitude change as well as learning. This, too, was a form of action research.

The final objective was to press on toward an understanding of how the successive stimuli of a half-hour educational television program produce changes in the behavior, explicit or implicit, of the viewer. Can the building blocks of the message be identified and tested, so that those with flaws may be replaced? Can stresses caused by faulty architecture of the message be detected and adjusted? Such objectives were clearly beyond reach of this study. Nevertheless, some advance might be possible. The approach was by comparison of the (like-dislike) scale of the Program Analyzer with the evaluative factor scales of the Semantic Differential.

The study was financed by the grant from the Michigan State University Agricultural Experiment Station, Lloyd M. Turk, Director. The grant, under the name of

Information Services Experiment Station 560, was made to the Department of Information Services, W. Lowell Treaster, Director. Leader for the project was Earl C. Richardson, Extension Editor. Their cooperation and interest is greatly appreciated. The design and execution of the experiment was the responsibility of the writer.

The advice of Charles H. Proctor, Consulting Service, Department of Statistics, Michigan State University, is gratefully acknowledged. His contributions are indicated in the Appendix on methodology. Lynn P. Clausen, who prepared the test materials and conducted the detailed analysis, and Charlotte D. Malloy, who did much of the coding and served as secretary for the project, are in a large measure responsible for the efficient execution of the study.

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SUMMARY

The purpose of this experimental study was to pursue three lines of inquiry. Could the County Agent television film series be expected to have an impact upon the general viewing audience? Could a practical procedure for program evaluation of an on-the-air educational television series be devised to measure total program impact and also indicate strengths and weaknesses of the production that occurred during presentation? Could the hypothesis that there is a direct relation between the evaluative (attitude) factor of the Semantic Differential scale and the (like-dislike) scale of the WKAR-TV Program Analyzer be demonstrated?

The factorial experimental-statistical design was adopted, based upon the definition of the general audience as being of both sexes and having urban, rural non-farm, and farm places of residence. The functional properties of the term impact were defined as follows: A sample program of the series is considered to have a measurable impact upon viewers involved if learning takes place and if attitudes toward one or more specific concepts shift in the desired direction as a result of the presentation of the program.

Two sample programs from the series of 13 were selected because of their expected special appeal to selected groups within the general audience, and because of what the producers felt to be two different production approaches. Learning from each program was measured by the Subject's difference score obtained from a Cloze Procedure pre- and post-test. Attitude shift was measured by the direction of the Subject's difference score obtained from a pre- and post-test version of the Semantic Differential. Program appeal and evaluation of segments within each program was measured by the WKAR-TV Program Analyzer summated profile data.

A total of 120 Subjects were tested in groups of 10, each person in the group having the same sex and similar place of residence. The laboratory session lasted approximately 2 hours per group during which the two sample programs were shown, appropriate tests administered, and a group interview conducted. The form of Cloze

Procedure pre-test, the sample program presented first, and the program analyzer scale--(like-dislike) and (learn-not learn) -- were varied systematically among the 12 experimental groups.

The County Agent television film series met the criteria for impact upon the general audience. All Subjects learned to a degree far exceeding the normal levels of statistical significance, and analysis of variance indicated for each sample program no difference among groups in learning at the .05 level of statistical significance. For each sample program there were statistically significant shifts of attitudes in the desired direction toward at least two specific concepts on the part of the general audience. There were no shifts in the undesired direction on the part of the general audience. The crude measure of program appeal, which exceeded the arbitrary criteria, was in harmony with the analysis indicating a substantial impact was obtained by each sample program.

The supplementing of program analyzer data by the Cloze Procedure measure of learning and the Semantic Differential measure of attitude shift was found practical for a two-hour experimental session, and was concluded to have justified the expense in terms of important additional data obtained and in terms of greater depth and validity of analysis.

The relation between the evaluative scale of the Semantic Differential and the (like-dislike) program analyzer scale was not demonstrated. Set to evaluate a program according to the (like-dislike) scale did not appear related to the attitude shift obtained as measured by the Semantic Differential. The degree of favorable attitude toward the summary concept of either sample program, as measured by the Semantic Differential, did not appear related to the (like-dislike) program profile means. Attitude shift toward specific concepts did not appear related to the corresponding profile segment means.

CHAPTER I

INTRODUCTION

Problem and Objectives

Consider the problems of those involved in the presentation of an educational television series on-the-air. The performer (frequently an expert in his field) can do a highly successful program and never see or hear from a single viewer. The producer must translate the knowledge and ability of the performer in terms of the medium. The educational administrator must decide whether the relatively high outlay for television is justified. The manager, of either the educational or the commercial station, must decide whether to carry this series or one among others competing for time on the air.

The presentation of the County Agent television film series provides a case in point, and the research reported here illustrates a method of obtaining an answer. The series consisted of 13 programs, each 26 minutes in length, produced on film in color for television presentation by Robert P. Worrall and Margaret McKeegan of the Cooperative Extension Service. The series was presented over WKAR-TV, the non-commercial educational station of Michigan State University, between January 7, and April 1, 1957, and bicycled to 12 commercial stations during the same period and later. It was first broadcast in color by WNEM-TV, Saginaw, and thus the University became the producer of the first television film program to be produced and presented in color in Michigan. Cost of the series, not including research, amounted to $41,600.

The series constituted a report on a variety of projects sponsored by the Agricultural Experiment Station and a demonstration of the more important findings which resulted. The series was documentary in nature, with film footage shot of Michigan State University research workers in the laboratories and on the experimental farms. In each program the same actor played the part of the county agricultural extension agent. The job of the agent (to bring the findings of agricultural research conducted at the University to the people of his county) was demonstrated in the series by showing him interviewing the research workers and also calling upon the people he serves. This device was intended to give continuity to the series and was emphasized by the title.

The series had been planned and executed with its purpose to inform and influence attitudes clearly in mind. The television producers stated they desired to inform the producers and consumers of agricultural products of research findings which could be put to their immediate benefit, and to inform the general audience as to the scope and importance of agricultural research. The producers consciously tried to build a series which would leave the general audience with a more favorable attitude toward research concepts and toward the sources of that information, namely, the county agent, agricultural research, and Michigan State University. This latter aim, of shifting attitudes, is difficult to accomplish, and there have been cases where a "boomerang effect" has been achieved instead (6:158-61).

Thus this series differed from most farm programs of the past. Although its subject-matter pertained to agriculture, its intended public was the general audience of television viewers. Could a program on agriculture inform the city dweller and at the same time inform the farmer? Could this same program also incline both groups toward a more favorable attitude toward such research and the sources of information about it?

Discussion of these problems indicated that the immediate consumers of the research (those involved in the presentation of the series) were primarily interested in guaging the impact of the series upon the general audience(1). They were also interested in a detailed production analysis of certain programs of the series for suggestions which might be applied to another series about to go into production.

The writer was interested in the project for several reasons. To begin with, few studies have been conducted in the area of educational television broadcasts designed for on-the-air presentation to the general audience. This is in marked contrast to the large number of studies dealing with the specialized area of systematic instruction typified by closed circuit television. Next, this represented, to the best of the writer's knowledge, the first use of the Semantic Differential to measure attitude shift resulting from a program in which the producer could specify in advance not only the concepts toward which he hoped to change attitudes but also the direction in which a shift was desired. Finally, the writer desired to compare this new application of a measure of attitude shift (assuming it proved successful) with other program evaluation measures.

At this point it became apparent that an experimental study would yield the most results for the amount of research funds available, approximately $2,000.00. As a consequence, the need for some indication of program appeal was added to the other objectives. Program appeal was defined as that kind of stimulus of sufficient strength to hold the attention of the viewer in his home, or at the very least, to keep him from turning to another channel. This level of effectiveness does not necessarily indicate that the program has any real impact upon the viewer.

On the other hand, an audience captive in a laboratory situation might register some minimum level of impact which would not occur were the audience free to select some other program. Therefore, it was considered desirable to obtain some estimate of the appeal of the sample programs other than the measures of impact itself.

For the purposes of this study, the functional properties of the term impact were defined as follows: a sample program of a series is to be considered to have a measurable impact upon the viewers involved if learning takes place and if attitudes toward one or more specified concepts shift in the desired direction as a result of the presentation of the program.

The objectives of the study, then, were to find the answers to the following questions:

1. Will the County Agent television film series have a measurable impact upon a general audience, regardless of sex or place of residence, i.e., urban, rural non-farm, and farm?

2. Will the series appeal to a general audience?[1]
3. What production suggestions for future series arise from analysis of sample programs?
4. Does an operationally significant relationship exist between several measures of program evaluation?

For additional details on the objectives of the study, the reader is referred to the Appendix on methodology.

Methodology

As indicated, the experimental method was considered most suitable to the objectives of the study and the funds available. Due to the broad areas included in the study, two paradigms were considered necessary to accomplish the objectives. To obtain the necessary measures of impact, the following design was employed:

Written Pre-test--Sample Program
Presentation--Written Post-test.

As used above, the terms pre-test and post-test refer to tests administered before or after viewing the sample program. To obtain the necessary measures of appeal and data for the analysis of the production, the following design was employed:

Instantaneous Subject reaction via Program Analyzer to
sample program presentation--subsequent Group Interview.

The comparison of program evaluation measures was essentially a comparison of the pre-test and post-test measures with the instantaneous measures.

The two sample programs arbitrarily selected to represent the series dealt with research on human nutrition and on soil tillage. One reason for their selection was that the producers felt these programs represented different production techniques, with the other programs of the series generally conforming to one or the other. The other reason was that the producers felt the content of these two programs was most likely to have an impact upon special segments of the general audience. The program on soil tillage was felt most likely to have an impact upon farm men, human nutrition upon urban women. The remaining programs were considered more likely to achieve a similar impact upon all groups, regardless of sex or place of residence.

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[1] For a brief, non-technical report on the two above objectives, see I. R. Merrill, "Impact of the 'County Agent' Television Film Series," Michigan State University Quarterly Bulletin, 40.4 (May, 1958).(9).

As for the manner in which empirical data were to be related to the objectives, impact depended upon both learning and attitude shift. The difference between the post-test and the pre-test for each Subject was considered the measure of his learning. Attitude shift of a group depended upon the number of Subjects per group shifting in the "more favorable" direction compared with the number shifting in the "less favorable" direction. The direction with the preponderance of shifts was compared with the direction desired by the producers.

Appeal of the sample program for home, rather than laboratory, viewing could be little more than a rough estimate. The minimum level of appeal was estimated from the mean (like-dislike) group profile rating, and an examination of disliked segments of the program (if any) revealed by that profile. In case of high profile ratings, evidence of a rather substantial impact was also expected.

A total of 120 adult Subjects were tested, and together they constituted the general audience. They were selected according to sex and place of residence and placed in groups of ten similar persons each. The 60 men were divided into two groups from urban, two groups from rural non-farm, and two groups from farm places of residence as defined by the U. S. Bureau of the Census (16, p. xiv). The 60 women were grouped in the same manner. While all groups were selected from within the WKAR-TV coverage area, no other criterion of selection was employed. Clubs and organizations were contacted and they assisted in recruiting Subjects. Since some farm groups were required to travel twenty miles to attend the sessions, it was decided to make a standard travel expense reimbursement to all Subjects. Analysis of personal data questionnaires indicated the groups of ten were approximately equal in terms of age and education.

Three measuring instruments were employed, Cloze Procedure, the Semantic Differential, and the WKAR-TV Program Analyzer. As a measure of learning, Cloze Procedure is similar to a sentence completion test in which every nth word of a passage is deleted (13:42-8). The Subject was required to fill in fifty blanks with the correct word. In this case, the exact words spoken in the television program were selected from five passages indicated as most important by the producers. The passages were long enough to provide two forms of the test for each sample program. A copy of both forms for each sample program is shown in Appendix B. Cloze Procedure was selected over other possible tests of learning because a pre-test of this variety offers minimal cues regarding the relative significance of information to be presented later. As a result it was felt the difference score represented a gain in learning reasonably attributable to information presented during the television program.

The evaluative factor of the Semantic Differential was the instrument employed to measure shift in attitude (12). The two evaluative scales selected were (good-bad) and (nice-awful). In this pencil-and-paper test the Subject was requested to put an x along a seven-point scale ranging from maximum "goodness" (7) through indifference (4) to maximum "badness" (1) to show how he felt about the concept HUMAN NUTRITION, or MINIMUM SOIL TILLAGE, for example. A copy of both pre-test and post-test forms for both sample programs is shown in Appendix B. The Semantic Differential was selected for two reasons. On the one hand, it, too, was felt to offer minimal cues as to the intent of the producers regarding attitude shift desired. On the other, the writer wished to compare the relationship between this kind of evaluative response and the apparently evaluative character of the (like-dislike) scale of the WKAR-TV Program Analyzer described below.

Nine concepts were tested for each sample program. Each program was assigned three sources, one summary concept, and five specific concepts. Sources were common to both sample programs, namely, COUNTY AGENT, AGRICULTURAL RESEARCH, and MICHIGAN STATE UNIVERSITY. These sources were included to provide an answer to the following question: given a program with x appeal and y impact, what happens to the general audience' evaluation of the sources of the program?

A summary concept was included to measure evaluation of the general research area treated in the sample programs, and was indicated by the producers as HUMAN NUTRITION and MINIMUM SOIL TILLAGE. The *specific concepts* were sub-topics arising within each program from the passages used in the Cloze Procedure test of learning.

The WKAR-TV Program Analyzer is an electrical apparatus with ten stations and a metering device in the circuit (8). By turning a knob at the station, the Subject may vary the resistance in the circuit and register his reaction according to a pre-arranged scale. The Subject views the program and simultaneously records his reactions, and a summated response of all ten Subjects is indicated on the metering device.

The Subjects were asked to subjectively evaluate one of the sample programs according to the five-point (*like-dislike*) scale, and the other program according to the five-point (*learn-not learn*) scale. Scale points for the former were (1) *dislike much*, (2) *dislike*, (3) *indifferent*, (4) *like*, and (5) *like much*. Scale points for the latter were (1) *not learning*, (2) *little learning*, (3) *average learning*, (4) *much learning*, and (5) *most learning*. Thus the same equipment was used throughout. Before each program was shown, the meaning of the particular scale to be used was carefully explained and practice in making appropriate judgments was conducted.

The criteria selected for analysis of the data obtained by use of the three measuring instruments are given in the Appendix on methodology.

A two-hour laboratory session was conducted for each of the 12 groups. For example, Group I, Urban Females, received Form Nu* as the Cloze Procedure pre-test, and the Form *NuPre* of the Semantic Differential. Then the sample program on Nutrition was presented during which the Group rated the film according to the (*learn-not learn*) scale using the WKAR-TV Program Analyzer. This was followed by administration of post-tests using the Form *Nu/* of the Cloze Procedure and Form *NuPos* of the Semantic Differential. This completed the first half of the session. The procedure was then repeated appropriate to the program on Soil Tillage. The final portion of the session was then devoted to a group interview. The Cloze Procedure Form used for the pre-test sample program tested during the first half of the session, and type of WKAR-TV Program Analyzer Scale were varied systematically among the twelve groups tested, as described in the Appendix on methodology.

CHAPTER II

IMPACT AND APPEAL

Impact

Learning

The difference scores, obtained by subtracting the pre-test score from the post-test Cloze Procedure score, were subjected to analysis of variance. The results of this analysis are shown in Tables 1 and 2. All males and females from urban and farm places of residence, a total of eight groups, were included in the analysis. The F-ratios for the grand means indicate that the scores achieved by all Subjects from each sample program were statistically significant from zero far beyond the .01 level. These findings do not contradict the assumption that the Subjects did learn from the presentation of each sample program. These ratios for the two sample programs were interpreted as highly similar.

The F-ratio for "Within Groups Residual" was not statistically significant for either sample program. This indicates that the means of the groups analyzed, after removal of those effects to be mentioned in the following paragraphs, were no more disperse than would be expected for six samples from the same population.

The F-ratio for "Test Sequence Difference" was not statistically significant for the program on nutrition. However, for the program on soil tillage, this F-ratio was statistically significant at the .05 but not at the .01 level. As indicated above, one form of the Cloze Procedure test was used systematically as a pre-test in half the groups and as a post-test in the other half. This significant F-ratio indicates that the two forms of the soil tillage test were not of equal difficulty. The advantage of analysis of variance as a statistical procedure becomes evident. Since it permits the effect of test sequence to be "pulled out," this factor does not contaminate the findings on group learning which follow.

When learning by males and females was compared, the F-ratios revealed no statistically significant differences at the .05 level for either the sample program on

Table 1

Variance in Cloze Procedure Difference Scores
After Viewing TV Film Program on Nutrition

Explanation	Sum of Squares	d.f.	Mean Square	F	5% Point
Urban vs. Farm Residence	6.61	1	6.61	F= .27 (N.S.)	F(1,75) = 3.97
Male vs. Female Sex	86.11	1	86.11	F=3.55 (N.S.)	F(1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	52.81	1	52.81	F=2.18 (N.S.)	F(1,75) = 3.97
Test Sequence Difference	2.12	1	2.12		
Within Groups Residual	16.73	3	5.58	F= .22 (N.S.)	F(3,72) = 2.73
Exp. Groups Subtotal	164.29	7	23.47		
Individuals within Groups	1,801.70	72	25.02		
Grand Mean	1,911.01	1	1,911.01	F=76.27 (Sig.)	F(1,72) = 3.98
Total	1,965.99	80	25.58		

Table 2

Variance in Cloze Procedure Difference Scores After Viewing Program on Soil Tillage

Explanation	Sum of Squares	d.f.	Mean Square	F	5% Point
Urban vs. Farm Residence	21.01	1	21.01	F= .75 (N.S.)	F(1,75) = 3.97
Male vs. Female Sex	12.01	1	12.01	F= .43 (N.S.)	F(1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	5.51	1	5.51	F= .20 (N.S.)	F(1,75) = 3.97
Test Sequence Difference	277.52	1	277.52	F= 9.93 (Sig.)	F(1,75) = 3.97
Within Groups Residual	36.13	3	12.04	F= .42 (N.S.)	F(3,72) = 2.75
Exp. Groups Subtotal	352.19	7	50.31		
Individuals within Groups	2,059.70	72	28.61		
Grand Mean	2,279.11	1	2,279.11	F=79.67 (Sig.)	F(1,72) = 3.98
Total	2,411.89	80	30.15		

nutrition or on soil tillage. However, the size of the mean square for learning differences by sex for the program on nutrition was so large as to result in an F-ratio which approached the .05 level. The numerically larger learning scores for the males may be of practical if not of statistical significance, and as such deserve mention here.

When learning according to place of residence was examined, the F-ratios revealed no statistically significant differences at the .05 level for either the sample program on nutrition or on soil tillage.

There remained the possibility that urban men and farm women might learn more about minimum soil tillage, for example, than would urban women and farm men. Examination of such dependent relationships between sex and residence categories revealed no statistically significant differences at the .05 level for either sample program.

Thus far, learning by group for each program as a whole was considered, and analysis of variance revealed no differences in learning related to sex, place of residence, or some dependent relationship between these categories. The possible exception of the greater learning by males than females for the program on nutrition was noted. The question then arose as to whether or not differences might appear if learning of sub-topics were examined separately.

Analysis of variance in learning by the eight groups was executed for each of the five sub-topics contributing to the central idea of the program on soil tillage. The analyses are shown in Tables A15 through A19 in the Appendix. No statistically significant differences in learning related to sex, place or residence, or dependent relationship between these categories was observed for any of the five sub-topics.

The same procedure was executed for the program on nutrition. Two sub-topics of the five did show statistically significant differences in learning between categories. For the passage explaining the use of the respiration meter in estimating calories consumed in different tasks, males learned more than females. For the passage expalining the nutritional needs of the central body core, urban males and farm females learned more than urban females and farm males. The fact that one of these two sub-topic differences appeared as a sex difference and the other as a sex-residence category dependent relationship difference explains why the total difference scores for the nutrition program did not statistically differ significantly between male and female. The analyses are shown in Tables A20 through A24 in the Appendix.

Attitude Shift

In consideration of the data pertaining to shift of attitude toward the central and specific concepts, two questions were to be asked: first, did a shift in attitude toward any concept occur on the part of the general audience, and second, was this shift similar for all sex and residence groups? For the program on human nutrition a statistically significant shift in attitude on the part of the general audience toward four of the six concepts measured as obtained. The concepts were, in order of number of groups shifting, as follows: QUICKIE DIET* (9 groups), CENTRAL BODY CORE* (5 groups), WEIGHT CONTROL* (3 groups), and RESPIRATION METER* (3 groups), HUMAN NUTRITION (3 groups), and CALORIES (1 group). Concepts marked with an asterisk were those in which a statistically significant shift (.10) on the part of the general audience occurred.

When experimental groups of the same sex and residence characteristics were combined and the test used on separate groups was repeated, all concepts marked with an asterisk were again found to have shifted, with the exception of RESPIRATION METER. For this concept, some sex-residence category interaction was apparent, although not significant. In the remainder of the concepts of the nutrition program, shifts in attitude could not be localized by sex or residence. This operation produced data approximately comparable to that obtained for learning scores by analysis of variance.

For the program on soil tillage, a shift in attitudes on the part of the general audience was again observed. In this instance, a statistically significant shift toward three of the six concepts measured was obtained. The concepts were, in order of number of groups shifting, as follows: LARGER SOIL PARTICLES* (8 groups), FIELD WEIGHING APPARATUS* (6 groups), MINIMUM SOIL TILLAGE* (5 groups), EXPERIMENT STATION (1 group), GROWING SEASON (1 group), and WEEED CONTROL (none). The asterisk again indicates statistical significance (.10).

All sex and residence groups shared equally in the shift in attitude toward the concepts LARGER SOIL PARTICLES and FIELD WEIGHING APPARATUS. for MINIMUM SOIL TILLAGE, females accounted for the shift in a more favorable direction.

An indication of the success of the producers in achieving shifts in attitude is the finding that no statistically significant shifts for the general audience in the "boomerang" direction occurred. For the program on soil tillage, no single group had a "boomerang" attitude shift toward any concept. For the program on nutrition, only two such instances were observed. Group III, Urban Males, and Group X, Farm Females, shifted in the "boomerang" direction for the concept HUMAN NUTRITION. No such shift toward any of the other five concepts of this program was noted on the part of any of the twelve groups.

Although the summary concept for each program was selected with a different purpose in mind, the shifts in attitude in regard to HUMAN NUTRITION and MINIMUM SOIL TILLAGE should be noted. No shift on the part of the general audience toward HUMAN NUTRITION was noted, although two groups recorded a "boomerang" shift. For MINIMUM SOIL TILLAGE a shift on the part of females but not males was observed. These findings will be considered in Chapter V.

For the moment, it was possible to observe that the major shifts in attitude occurred in regard to the concepts QUICKIE DIET and LARGER SOIL PARTICLES. For ease of reference, these were characterized as key concepts.

The findings on learning and attitude shift for each program, may be summarized as follows: 1) in each case learning was achieved, 2) in each case total learning did not differ among sex-residence groups, 3) in each case attitudes of the general audience were shifted, and 4) in each case the shift was similar for all sex and residence groups for the key concept and at least one other concept. These findings represent an impact greater than the minimum specified by the criteria.

Appeal

To estimate whether the appeal of the sample program was sufficient to hold the interest of the home viewers, the mean WKAR-TV Program Analyzer rating for the general audience on the (like-dislike) scale was examined. For the program on nutrition, the mean rating was 3.625, and for the program on soil tillage, the mean rating was 4.000. Thus both programs surpassed the arbitrary criterion of 3.500. The other estimate of appeal involved the inspection of the valleys in the (like-dislike) profiles. For the program on nutrition the low point was 2.500, while for the program on soil tillage the low point was 2.625. These points lie above the arbitrary minimum criterion of 2.000 defined as (dislike) on the five-point scale.

To estimate similarity of appeal among all the sex-residence groups, analysis of variance was performed upon the (like-dislike) profile means for the six groups rating each program according to this scale. As shown in Table 3, for the program on nutrition there was no difference between group profile means for either sex. This table also indicates no difference among group profile means for urban, rural non-farm, or farm places of residence. For the program on soil tillage, Table 4 indicates no difference between group profile means according to sex or place of residence. These tests indicate no difference among groups regarding the appeal of each program as a whole.

Table 3

Variance in (like-dislike) Mean Profile Scores
from Viewing TV Film Program on Nutrition

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Rural Non-Farm vs. Farm Residence	.26	2	.13	F = 1.36 (N.S.)	F(2,2) = 19.00
Male vs. Female Sex	.09	1	.09	F = 1.00 (N.S.)	F(1,2) = 18.51
Residual Variance	.19	2	.09		
Total	.54	5			

Table 4

Variance in (like-dislike) Mean Profile Scores from Viewing TV Film Program on Soil Tillage

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Rural Non-Farm vs. Farm Residence	.55	2	.28	F = 7.46 (N.S.)	F(2,2) = 19.00
Male vs. Female Sex	.36	1	.36	F = 9.62 (N.S.)	F(1,2) = 18.51
Residual Variance	.07	2	.04		
Total	.98	5			

Although the (like-dislike) rating mean for an entire sample program showed no variance statistically significant among groups, inspection of the peaks (passages liked) and valleys (passages disliked) along the profile suggested the groups were not of one mind in their judgements. Translated into tetrachoric coefficients of correlation, as shown in Table 5, for the program on nutrition, the r's confirmed that the groups were in only moderate agreement as to which parts of the program were liked and disliked. Information obtained during the group interview indicated that some of the women's groups had recently participated in club meetings where nutrition and diets had been adopted as a topic of study.

The same pattern of moderate agreement was found between groups as to which passages of the program on soil tillage, as shown in Table 6, were (like much). Here again the group interview revealed a varying degree of familiarity with the recently announced procedures for minimum soil tillage.

The Series

Up to this point, the analysis of impact and appeal was concerned with each sample program. There remained the question as to how the series as a whole should be evaluated. The series was found to have general audience appeal. Both programs were equally well liked, as judged by analysis of variance of the (like-dislike) profile means for all sex-residence groups. Moreover, the amount of this appeal to the general audience exceeded the criterion established in the case of both programs.

Table 5

Tetrachoric Coefficients of Correlation Between Sex and Residence Group Profiles for Program on Nutrition

	Urban		Rural Non-Farm		Farm
	M	F	M	F	M
	("Like-Dislike" Scale)				
Urban F	-.12				
Rural Non-Farm M	.54				
Rural Non-Farm F		.28	.41		
Farm M	.65		.54		
Farm F		.79		-.12	.65
	("Learning-Not Learning" Scale)				
Urban F	1.00				
Rural Non-Farm M	.79				
Rural Non-Farm F		1.00	.79		
Farm M	1.00		.79		
Farm F		1.00		1.00	1.00

However, as was previously noted, the general audience profile mean was higher for the program on soil tillage than for the one on nutrition. This difference between the means was statistically significant at the approximate .05 level. Factors which might account for this difference will be examined in the chapter on production analysis to follow.

The series was found to have had an impact upon the general audience, because both programs produced learning and attitude shift. Moreover, this learning did not vary, considering the program as a whole, among sex-residence groupings. The same was true for the area of attitude shft. Both programs had at least two specific concepts, including the key concept, in which attitudes shifted in the desired direction regardless of sex or residence factors.

Table 6

Tetrachoric Coefficients of Correlation Between Sex and Residence Group Profiles for Program on Soil Tillage

	Urban		Rural Non-Farm		Farm
	M	F	M	F	M
("Like-Dislike" Scale)					
Urban F	.65				
Rural Non-Farm M	.31				
Rural Non-Farm F		.54	.28		
Farm M	.54		.31		
Farm F		.54		.28	.31
("Learning-Not Learning" Scale)					
Urban F	1.00				
Rural Non-Farm M	.79				
Rural Non-Farm F		.79	.79		
Farm M	.79		1.00		
Farm F		.65		.54	.54

A final question remained: given a program with moderate appeal and more than the minimum measurable impact, what happens to the general audience' evaluation of the program sources? When the same test of attitude shift used previously was applied to the sources, no statistically significant shift by the general audience was found regarding COUNTY AGENT (2 groups, nutrition; 2 groups, soil tillage), AGRICULTURAL RESEARCH (none, nutrition; 1 group, soil tillage), and MICHIGAN STATE UNIVERSITY (1 group, nutrition; 1 group, soil tillage).

It may be concluded that the series County Agent achieved general audience appeal and produced substantial impact upon that audience while maintaining an already favorable attitude toward the sources of the series. Table 7 indicates that these attitudes were indeed favorable. That attitudes toward sources did not shift in a "more favorable" direction although attitudes toward concepts did will be considered in Chapter V.

A summary of all data for the sample programs is given in Appendix Tables A13 and A14.

Table 7

Attitude toward Sources of Agricultural Information After Viewing Program on Soil Tillage

	Scale Score*	Number of 12 Groups Shifted
MICHIGAN STATE UNIVERSITY	6.36	1
AGRICULTURAL RESEARCH	6.29	2
COUNTY AGENT	5.90	2/

*Scale range of maximum (7.00) to minimum (1.00)

/Shift of less than three groups was considered a "not significant" effect on general audience attitude.

CHAPTER III

PRODUCTION ANALYSIS

Profile Correlations

What scenes within the program were rated similarly by most groups (thus producing a positive correlation)? What scenes had varying appeal (thus preventing a higher correlation)? What was the pattern of moment-by-moment reaction to the program by a particular group? What can (like-dislike) and (learn-not learn) profiles suggest about the strength and weakness of a program?

(like-dislike) Profiles

As indicated in Table 5, for the program on nutrition there was moderate agreement among groups as to the (like-dislike) rating of certain portions within the program. As shown in Figures 1a and 1b, six groups (one from each sex and residence category) rated it according to the (like-dislike) scale. There was general agreement that the scenes with narrator and background music showing laboratory equipment being used in research on human nutrition were rated from (like) to (like much). The introduction and summary scenes were rated generally (indifferent). A scene with the narrator saying:

> "There is a psychological angle to this problem. Sometimes loneliness, disappointment, and boredom tempt us to eat for want of other things to do."

which showed an overweight young woman reading listlessly as she munched popcorn, was given a rating ranging from (indifferent) to (dislike).

Perhaps the sharpest disagreement among groups occurred toward the close of the program. Urban Females (Group II) gave a rating approaching (like much) to an extended scene within the office of the human nutrition research specialist. Here the device of narration was dropped, and the county agent, together with the home demonstration agent, carried on a typical conference with the specialist. The remaining five groups rated two portions of this scene from (indifferent) to (dislike), while a third portion of the scene was rated somewhat higher than the other two portions.

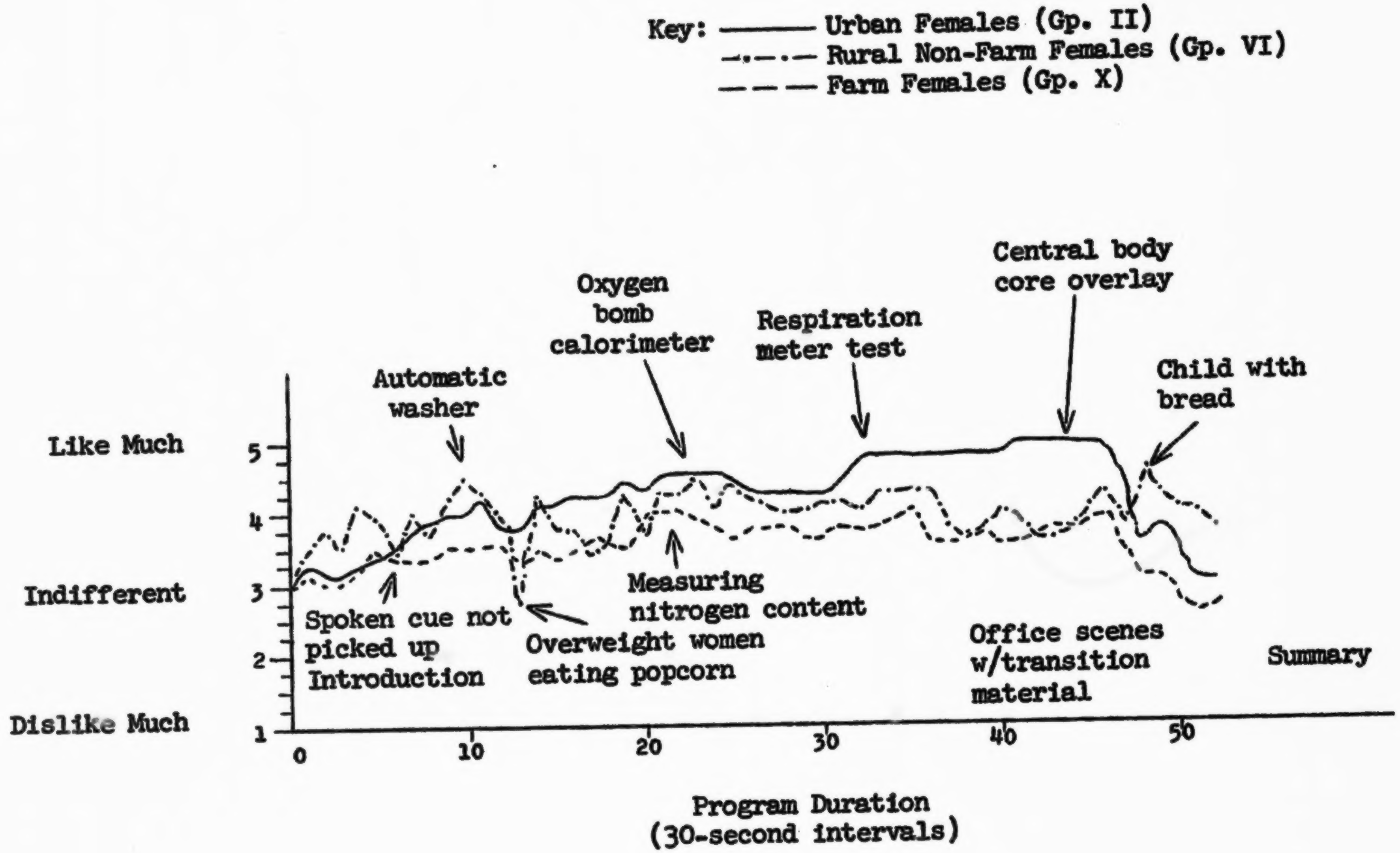

Figure 1a. (like-dislike) profiles for female groups for program on nutrition

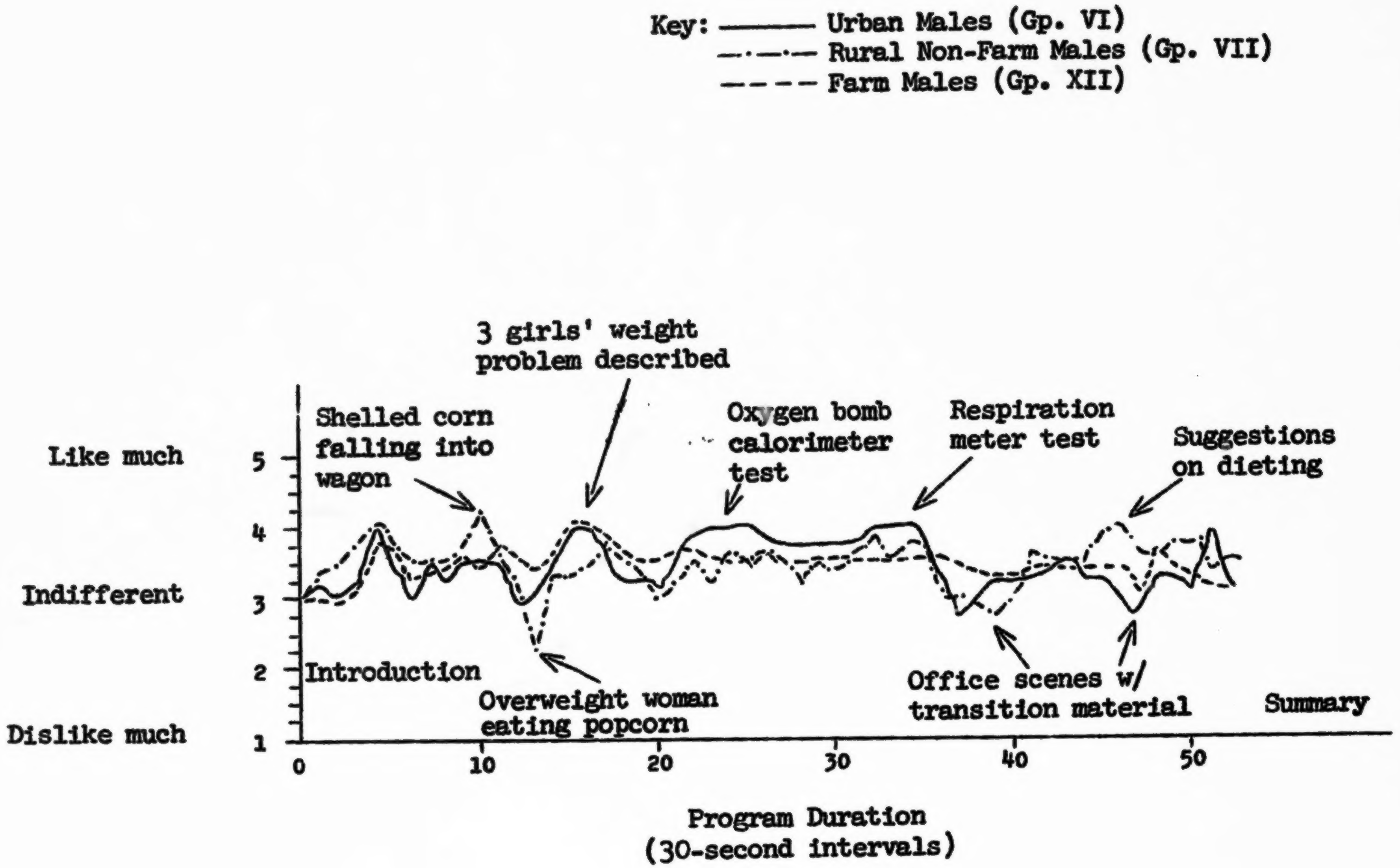

Figure 1b. (like-dislike) profiles for male groups for program on Nutrition

Other points along the profile show a certain independence of rating among the groups without indicating other major differences of opinion. Two other deviant ratings, however, may be noted. At approximately five minutes into the program, Rural Non-Farm Females (Group VI) reported one of the three highest ratings they gave. At this time a montage of scenes was shown with the narrator speaking as follows:

> "Look how the farmer's work has changed. Not so many years ago he labored all day corn husking on to a wagon. Now its done mechanically. The modern homemaker has machines to help her do her work, when once she did it all by hand."

The scenes included a brief shot of an automatic bayloader dropping shelled corn into a wagon, and of a homemaker adjusting the dial of an automatic washer. It was assumed by the writer the female rating referred to the washer. The Rural Non-Farm Males gave this point in the program their highest rating. It was assumed by the writer the male rating referred to the automatic loader. In contrast to this peak, the rating of the Farm Males indicated a slight valley at this point.

As indicated in Table 6, for the program on soil tillage there was also moderate agreement among groups as to the rating of certain portions within the program. The six groups shown in Figures 2a and 2b reported a rating of (like) to (like much) for a montage of pastoral scenes showing, with accompanying narration, the scope of agricultural research, the countless questions having to do with the soil. Also rated between (like) and (like much) were a scene showing a close-up of the huge furrows turned by the disc plow and a scene with a close-up shot of the operation of the subsoil tiller. The standard introduction and the summary scene were rated generally (indifferent).

Other points along the soil tillage profile showed a certain independence of rating among groups without indicating other major differences of opinion. It should be noted that there were no positive correlations below $\underline{r}$ .28, and no zero or negative correlations whatsoever.

(8770)

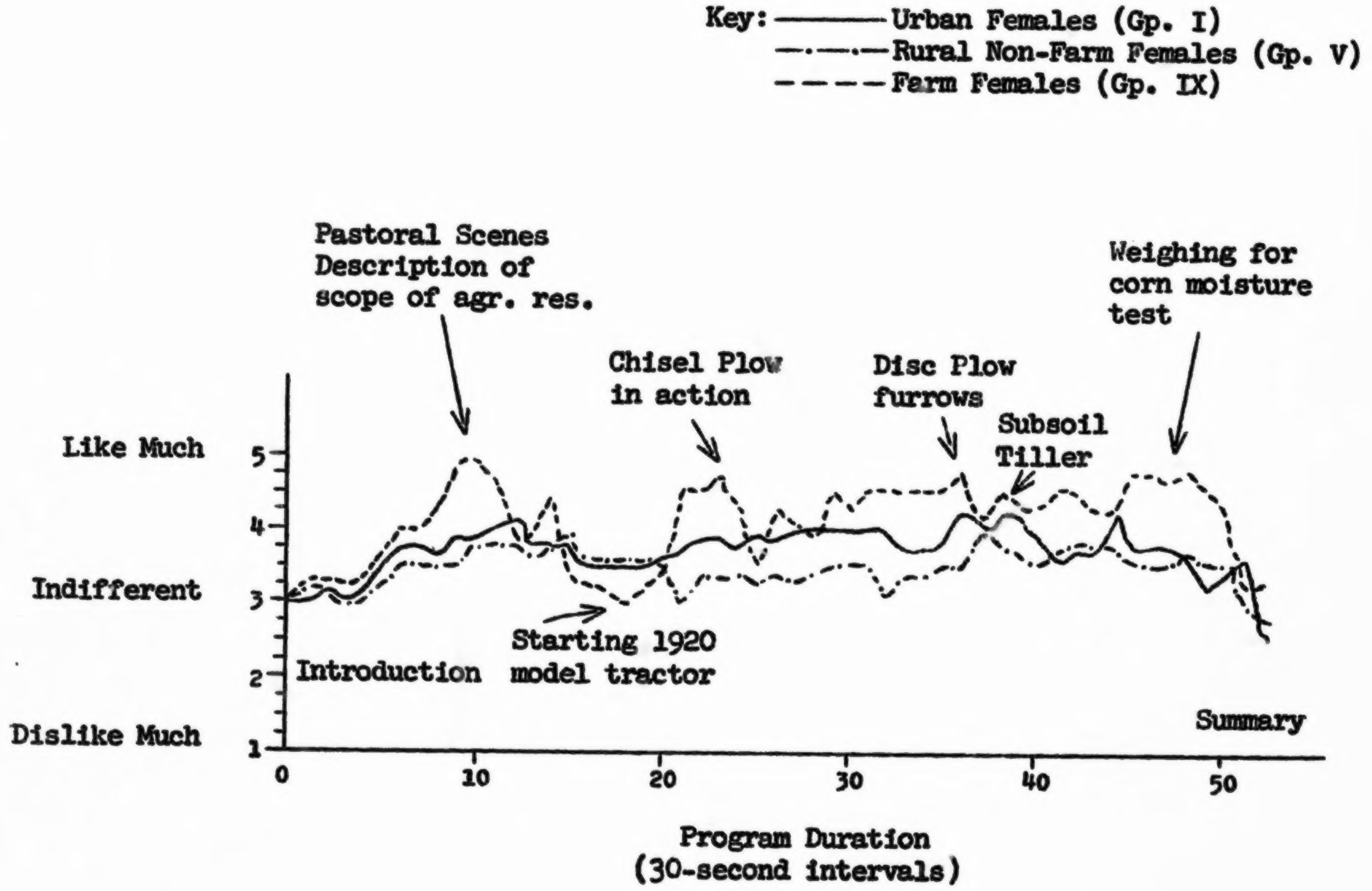

Figure 2a. (like-dislike) profiles for female groups for program on Soil Tillage

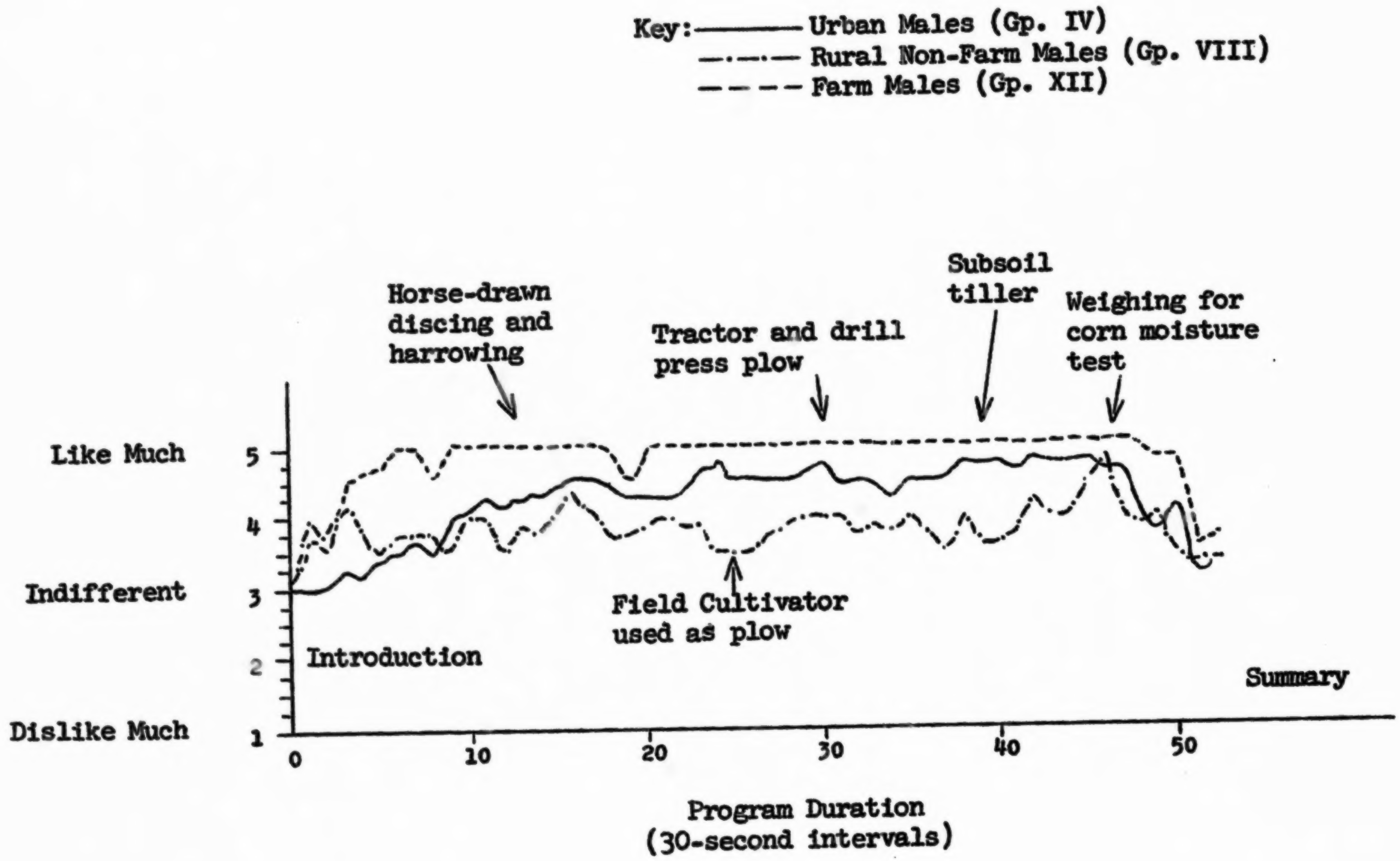

Figure 2b. (like-dislike) profiles for male groups for program on Soil Tillage

(learn-not learn) Profiles

The agreement among the six groups in Table 5 which rated the program on nutrition according to the (learn-not learn) scale was interpreted as that of a very high positive correlation. This made it possible to combine ratings of several groups into a more convenient presentation. The group profiles were averaged for each sex, because it was anticipated in the beginning that this would be the critical category. As can be observed from Figure 3, the two profiles showed marked similarity. It may also be observed that there was a decided contrast between the (like-dislike) and the (learn-not learn) profiles for the program on nutrition.

Peaks on the (learn-not learn) profiles occurred during scenes which showed how the amounts of nitrogen, fats, and calories in food are determined. Peaks also appeared for all groups during the scenes showing how the respiration meter is used to estimate the amount of energy expended in performing certain tasks. Finally, peaks were noted during the scene in which the dangers of the "quickie" diet were explained.

Valleys on the (learn-not learn) profiles occurred for all groups during the introduction to the program on nutrition as well as for the summary close. The profile curve rose slowly until 10 minutes into the program, at which point it rose sharply to remain high until the summary close, with one exception. This exception concerned the office scene with transition material described earlier.

The agreement among the six groups in Table 6 which rated the program on soil tillage according to the (learn-not learn) scale was also interpreted as that of a very high positive correlation. In this case the profiles for all female groups were combined as were those for male groups. Figure 4 shows the marked similarity between the two profiles. Once again a decided contrast between the (like-dislike) and (learn-not learn) profiles was observed.

Four distinct peaks, rating at or above (average learning), were observed. Three occurred during the scenes showing research into tillage accomplished by means of the sweeps, the disc plow, and the subsoil tiller. The fourth occurred

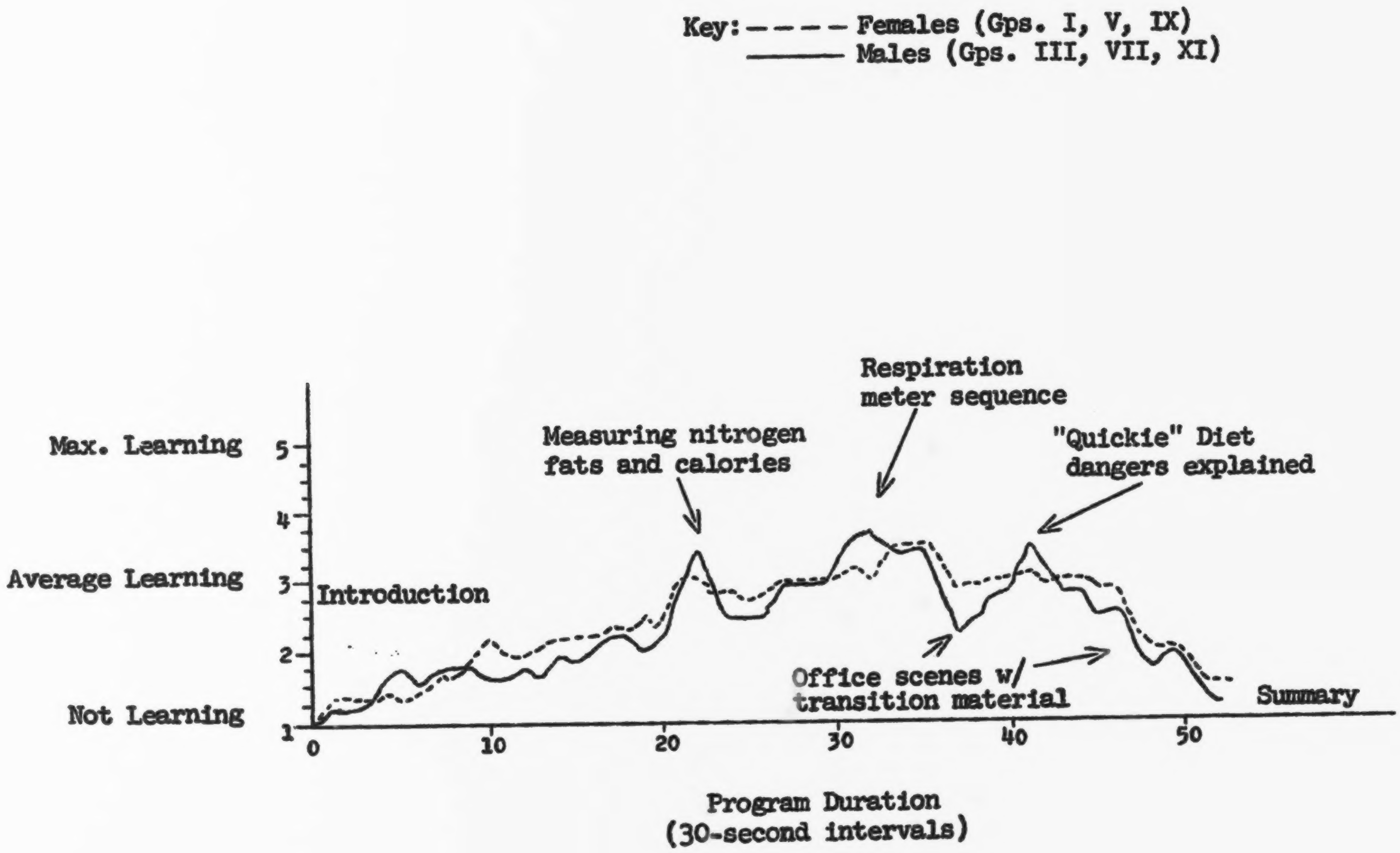

Figure 3. (learn-not learn) profiles for males and females for program on Nutrition

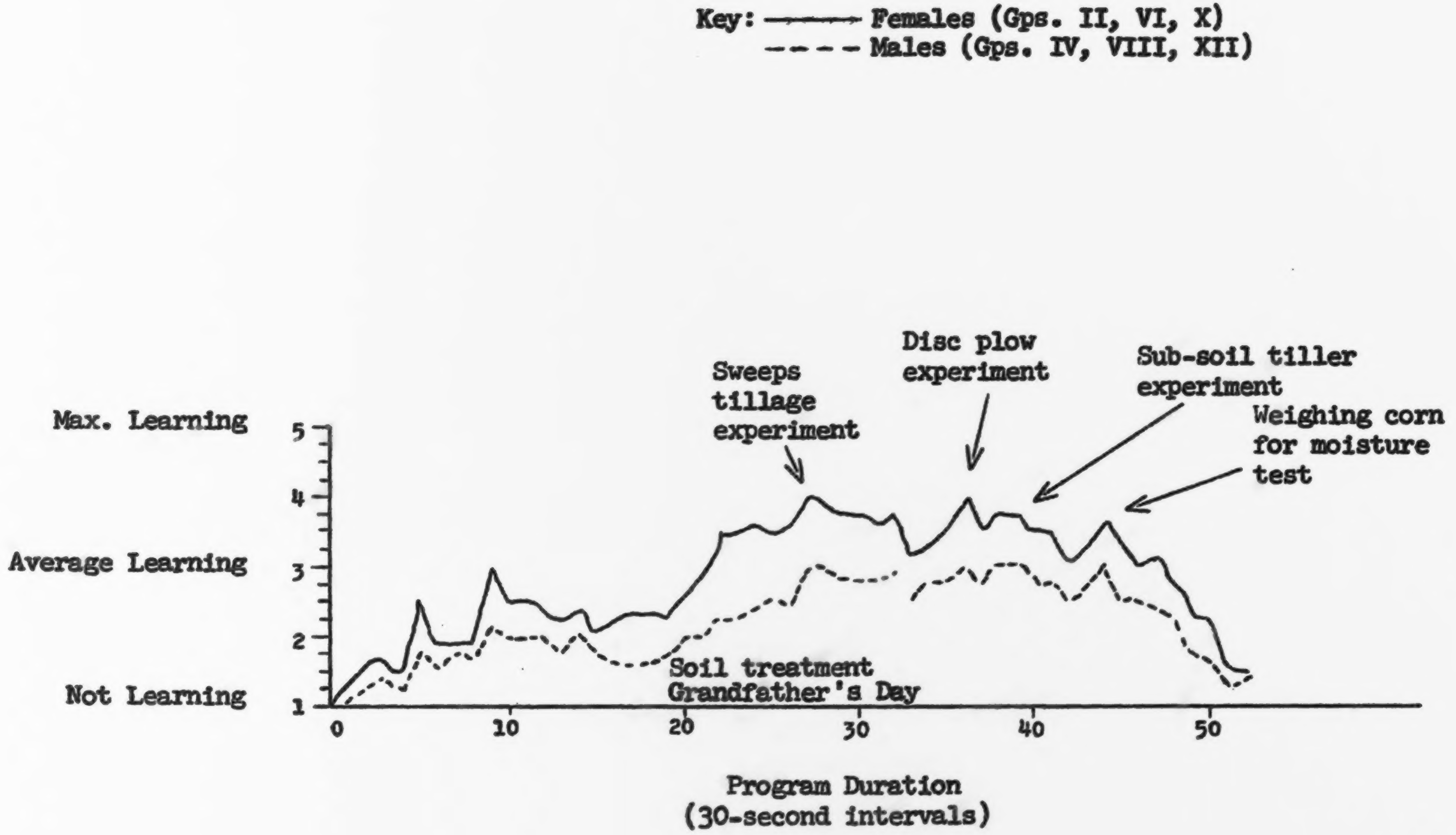

Figure 4. (learn-not learn) profiles for males and females for program on Soil Tillage

during a scene showing a new device for weighing samples of corn yield to determine the amount of moisture content of the ears. The first three peaks were associated with passages of the script previously marked by the producers as important. The fourth peak was associated with a scene marked by photographic excellence.

Valleys on the (learn-not learn) profiles appeared for all groups at an early portion of the program during a scene showing soil treatment "in grandfather's day." The succession of scenes all concerned the same piece of land, and showed mostly medium shots of a farmer on foot following a single horse to plow, disc, harrow, re-disc, re-harrow, and finally plant, as the narrator summarized:

> "By the time the planting was done, many precious growing days were lost, and as a result, many crops were wiped out because they were not ready to harvest by the time the frost struck."

A few moments later the narrator said:

> "We agricultural researchers were well aware of this problem, that we knew we couldn't make the growing season longer, but that maybe we could speed up the soil preparation process and do something about soil compaction."

Accompanying this narration was a long shot of men looking at experimental tillage machines, then a cut to a medium shot, followed by a close-up of a soils experimental plot chart. At this point in the program, the (learn-not learn) profile, which had climbed slowly and then dipped, began to climb abruptly and reached or passed the (average learning) level. The profile remained at or above this level until the summary close.

Implications for Production

Scale Comparisons

When profile data is used to analyze an educational television program from a series intended for on-the-air presentation, comparison of the shape of the (like-dislike) profile with that of the (learn-not learn) profile may lead to a better understanding of the effects upon the viewer of certain techniques and elements of production.

Both sample programs provide an example of this desirability. By examing both types of profiles, the organization of both programs was at once suggested: devote the first 10 minutes to attracting attention and holding interest with motivating material, and then present the desired information, a brief summary, and closing credits.

At this point the scriptwriters were approached for the first time in the research project and asked how they organized each of the two sample programs. They were not informed of the profile analysis findings until after they had given their answer. It developed they had followed for both programs the type of organization suggested by profile analysis.

It has been pointed out that the relation between the (like-dislike) scale and the (learn-not learn) scale for a single point in a television program involves several possibilities for content and production effectiveness (8:244). Some of these may be tabulated as follows:

Profile Rating		Production Inference		
(like-dislike)	(learn-not learn)	Techniques	Performer	Content
High	Low	Good	Good	Entertainment
High	High	Good	Good	Immediate Reward Information
Low	High	Good	Good	Delayed Reward Information
Low	Low	No inference possible	No inference possible	No inference possible

The High-Low relationship was found, in general, during the first 10 minutes of each sample program, and the attention-attracting and interest-holding material must indeed have partaken of an entertainment-like quality. Whether the High-High and Low-High relationships do indeed indicate Immediate and Delayed reward information is no more than a hypothesis, and no clear-cut examples of Low-High points were observed within the two sample programs. However, it is of practical importance that the High-High relationship was noted for several points within each program.

For the program on nutrition, it may be said that there were three points for the general audience where a High-High relationship occurred: the measurement of nitrogen, fats, and calories in food, the measurement by the respiration meter of energy expended, and the demonstration of how "quickie" diets may harm the central body core. The fact that the producers stated these passages of the script were important, and the fact that learning and attitude shift was obtained from this sample program is interpreted by the writer as evidence of successful production. The presentation focused its energy at the critical points to accomplish the desired impact.

For the program on soil tillage, the High-High relationship occurred for the general audience at the points pertaining to the scope of agricultural research conducted by the Experiment Station, to several experimental methods of soil tillage, and to the method of testing soil tillage by the actual crop yield, excluding the moisture content. Here again, the two profiles produced peaks at points indicated as critical by the producers. The independent tests of learning and attitude shift also indicated the impact of the program on soil tillage.

There were, however, certain spots where valleys on both the (*like-dislike*) and (*learn-not learn*) profiles coincided, producing the Low-Low relationship referred to above. Here some possible improvement may be indicated. For the program on nutrition, this Low-Low relationship occurred during the introductory minute and a half. This represents a serious danger for continuing viewing by the general audience. Some attention-getting material should probably be introduced no later than 30 seconds into the program, if such a series is to compete with entertainment offerings such as crime programs, which are currently showing a theft, a beating, or a murder scene even before they flash the opening titles.

Another critical spot in the program on nutrition occurred after 17½ minutes of presentation, where both profiles took a sharp dip. This dip reflected the photographic scene change where the County Agent and Home Agent interviewed the nutrition specialist in her office. Normally, a major scene change, indicating a change in the development of the program idea causes a brief dip, but in the opinion of the writer this valley was too deep and too wide to indicate a mere scene change.

Reference to the script disclosed that the writers planned a close-up shot of the nutrition specialist making a direct statement to add force and clarity to the main point of the program: the harm the "quickie" diet may do to the central body core. This valley was noted during the experimental session and the groups were queried about it during the interview period.

Although the groups were unable to verbalize their feelings directly, the writer received the impression that negative feelings were directed toward the nutrition specialist. No further explanation could be extracted from the information at hand. Although this point represented the major production deficiency which occurred within the program, it cannot be considered of serious consequence, because the program still produced a shift in attitude toward the concept QUICKIE DIET in the desired "less favorable" direction, and because learning did take place. The question raised here is: would some change in script, performer, or production technique have made the program still more effective? The data seem to indicate this is so.

The introductory portion of the program on soil tillage also received the Low-Low rating, and thus appeared to call for the same treatment suggested for the other sample program. Within the program, a major question about production occurred after approximately 7 minutes of the presentation, where both profiles showed a low rating for a sequence of scenes relating to soil treatment "in grandfather's day." However, the (like-dislike) valley was chiefly the responsibility of the women, for whom these scenes did not evoke a nostalgia as they apparently did to some extent for the men. Both males and females agreed in rating the passage low on the (learn-not learn) profile. There is also some indication from the interview sessions the pace slowed from a purely technical viewpoint during this passage as well.

The ideal shape of the (like-dislike) profile begins with a sharp rise to a point second only to the climax of the program, remains relatively high, builds to the climax, and drops at the close which follows almost at once.

If the profile for the program on nutrition were to be compared with this ideal shape of curve, it would generally show a moderate amount of agreement. Ideally, it should reach a higher rating point, and some of the serious drops, which have already been noted, should not appear. Much the same comment can be made of the soil tillage profile. Both programs do not have a sharp enough rise from the opening to satisfy the demands of the ideal (like-dislike) profile shape.

CHAPTER IV

PROGRAM EVALUATION MEASURES

The (like-dislike) Profile and the Semantic Differential

As indicated in the Appendix on methodology, one hypothesis of this study was that the evaluative factor of the Semantic Differential and the (like-dislike) profile scale have a positive relationship with each other, because both are apparently evaluative in nature.

It has been known that persons favoring the Republican party are more likely to view Republican partisan political broadcasts than are Democrats, and vice versa (10:422). It was hypothesized that groups with an initially "more favorable" attitude toward the topic of human nutrition would rate the program higher on the (like-dislike) scale than would groups with an initial attitude that was less favorable.

A rough means of measuring this relationship is shown in Table 8. With the groups ranked in the order of the size of the program profile mean, it was expected that the Semantic Differential pre-test scores for the central concept would also fall in the same rank order. Inspection reveals that no such positive correlation exists. This rough measure, then, fails to support the hypothesis. The same was true for the program on soil tillage.

It will be recalled that six of the twelve groups viewed the program on human nutrition while rating it according to the (like-dislike) scale and that the other six groups did so while rating the program according to the (learn-not learn) scale. Since it is the purpose of the instruction period prior to presentation to induce a set to respond by use of the WKAR-TV Program Analyzer to the entire program in terms of the designated scale, it was hypothesized that the set of six groups to respond in the evaluative terms of (like-dislike) might well produce a greater number of shifts along the evaluative factor of the Semantic Differential than for the six groups rating the same program according to the (learn-not learn) scale.

Table 8

Relation of Group (like-dislike) Program Profile Mean to Semantic Differential Pre-test Score for Central Concept* and to Total Shifts for Program

	(like-dislike) Program Profile Mean	Central Concept S.D. Pre-test Score	Total S.D. Shifts for Program
		(Program on Nutrition)	
Group II	4.125	5.75	2
Group VI	4.000	5.95	2
Group X	3.500	5.90	5
Group XII	3.500	5.05	3
Group IV	3.375	5.25	3
Group VIII	3.375	5.85	1
			16
		(Program on Soil Tillage)	
Group XI	4.825	6.30	1
Group III	4.250	5.95	2
Group IX	4.125	4.50	4
Group VII	3.825	5.80	0
Group I	3.750	4.40	2
Group V	3.625	5.35	1
			10

*Central Concepts: Human Nutrition
Minimum Soil Tillage

As shown in Table 9, this hypothesis was not confirmed. For the program on human nutrition the preponderance of total shifts for the nine concepts occurred among the groups rating the program according to the (like-dislike) scale, but for two of the concepts, the preponderance fell the other way. For the program on soil tillage, the groups rating the program according to the (learn-not learn) scale reported the greater number of shifts. For this program also, however, two concepts had the preponderance of shifts reversed for these scales. Since the same six groups were responsible for the total preponderance of shifts on both programs, a difference among the groups rather than a difference in set appears the more acceptable factor at the moment. This assumed difference among groups, however, was not revealed by measurement of the group attitude toward the summary concept prior to presentation of the sample program.

Table 9

Number of Groups Reporting Attitude Shift According to WKAR-TV Program Analyzer Rating Scale Used

(Program on Nutrition)

	(like-dislike)	(learn-not learn)	Total
Concepts			
QUICKIE DIET	6	3	9
HUMAN NUTRITION	1	2	3
CENTRAL BODY CORE	3	2	5
WEIGHT CONTROL	2	1	3
RESPIRATION METER	1	2	3
CALORIES	1	0	1
Sources			
COUNTY AGENT	1	1	2
AGRICULTURAL RESEARCH	0	0	0
MICHIGAN STATE UNIVERSITY	1	0	1
Total	16	11	27
(Program on Soil Tillage)			
Concepts			
LARGER SOIL PARTICLES	3	5	8
MINIMUM SOIL TILLAGE	3	2	5
FIELD WEIGHING APPARATUS	2	4	6
EXPERIMENT STATION	0	1	1
WEED CONTROL	0	0	0
GROWING SEASON	0	1	1
Sources			
COUNTY AGENT	0	2	2
AGRICULTURAL RESEARCH	1	1	2
MICHIGAN STATE UNIVERSITY	1	0	1
Total	10	16	26

Turning to the examination of the hypothesis that there is a direct relationship between the (like-dislike) scale and the evaluative factor, three measures of comparison were selected. The first measure was related to proposition which ran as follows: even though the group attitude before the presentation may not affect the general level of profile rating, it is possible that some groups are more responsive to appeals for attitude shift and that these groups will give the higher profile ratings. As shown in Table 8, the groups were ranked according to program profile mean, and the number of shifts per program were listed in the column at the extreme right. Inspection reveals no positive relationship between mean and total shifts for either program.

The second measure was related to the proposition which ran as follows: for a given group, that segment of the (like-dislike) profile related to a concept for which an attitude shift occurred should be higher than for segments pertaining to concepts for which no shifts occurred. As shown in Table 10, the mean rating was found for each of five segments reported by the producers as pertaining to a specific concept. Those segment means for concepts for which the group reported an attitude shift are listed in the five columns at the right of the table. The average of the no-shift profile segments is given in the column at the left. Inspection reveals no positive relation for either program.

Table 10

(like-dislike) Profile Means for Specific Concepts According to Shift

(Program on Nutrition)

	No Shift			Shift		
	Grouped Mean All Concepts	QUICKIE DIET	CENTRAL BODY CORE	WEIGHT CONTROL	RESPIRATION METER	CALORIES
Group II	4.500	4.750				
Group IV	3.500		3.250		3.825	
Group VI	3.825	3.625				
Group VIII	3.375	2.825				
Group X	3.625			3.500		3.500
Group XII	3.625	3.250	3.375	3.825		

(Program on Soil Tillage)

		LARGER SOIL PARTICLES	FIELD WEIGHING APPARATUS	EXPERIMENT STATION	WEED CONTROL	GROWING SEASON
Group I	3.625	4.000				
Group III	4.125	4.625				
Group V	3.500					
Group VII	4.000					
Group IX	4.125	4.375	4.250			
Group XI	4.825					

The third measure was related to the proposition which ran as follows: not all specific concepts were equally important to the producers, and so therefore, the program profile mean should be directly related to the key concept, which was empirically found to represent the most potent appeal of the concepts measured. In this case the total program profile means for those groups which reported shifts in attitude toward the key concept were compared with the total program profile means of those groups which reported no shift in attitude toward the key concept. This was done for both sample programs. No relationship was observed.

Examination of the pattern of shifts in Figure 5, however, did reveal at least a suggestion that the hypothesized relationship may exist. After viewing the program on nutrition, 4 groups had a total of 5 "boomerang" shifts, and a grouped program profile mean of 3.625. After viewing the program on soil tillage, no groups had a "boomerang" shift in attitude, and a program profile mean of 4.000.

Closer examination revealed that this pattern had a strong element of consistency. The summary concept HUMAN NUTRITION did not shift significantly due to conflicting shifts on the part of three groups, whereas for the summary concept MINIMUM SOIL TILLAGE five groups shifted in the desired "more favorable" direction. It is consistent that this ambivalence toward the summary concept of the program on nutrition should accompany a lower grouped profile mean for the general audience. Further aspects of this pattern consistency will be discussed in Chapter V.

The (learn-not learn) Profile and Cloze Procedure

In the case of the (learn-not learn) profile and the Cloze Procedure measure of learning, it was hypothesized that the measures would have a positive relationship with each other. One comparison made was between the difference scores and the (learn-not learn) profile means, for which an analysis of variance was computed for each sample program. There was no significant difference among group profile means according to either sex or residence, as shown in Tables 11 and 12, for either sample program.

☐ No Attitude Shift
▩ Desired Shift
▨ Undesired Shift

Nutrition

	Urban				Rural Non-Farm				Farm			
	F		M		F		M		F		M	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Concepts:												
Key:												
Quickie Diet*	☐	▩	▩	▩	☐	▩	☐	▩	▩	▩	▩	▩
Summary:												
Human Nutrition	☐	☐	▨	☐	☐	☐	☐	☐	☐	▨	▩	☐
Specific:												
Central Body Core*	☐	▩	☐	▩	☐	☐	☐	☐	▩	☐	▩	▩
Weight Control*	☐	☐	▩	☐	☐	☐	☐	☐	☐	▩	☐	▩
Respiration Meter*	☐	☐	☐	▩	▩	☐	☐	☐	▩	☐	☐	☐
Calories	☐	☐	☐	☐	☐	☐	☐	☐	☐	▩	☐	☐
Sources:												
County Agent	☐	☐	☐	☐	☐	▨	☐	☐	☐	☐	▨	☐
Agricultural Research	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Michigan State University	☐	☐	☐	☐	☐	☐	☐	☐	☐	▨	☐	☐

Soil Tillage

	Urban				Rural Non-Farm				Farm			
	F		M		F		M		F		M	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Concepts:												
Key:												
Larger Soil Particles*	▩	▩	▩	▩	☐	▩	☐	☐	▩	▩	☐	▩
Summary:												
Minimum Soil Tillage*	▩	▩	☐	▩	▩	☐	☐	☐	▩	☐	☐	☐
Specific:												
Field Weighing Apparatus*	☐	▩	▩	▩	☐	☐	☐	☐	▩	▩	☐	▩
Experiment Station	☐	▩	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Growing Season	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	▩
Weed Control	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Sources:												
County Agent	☐	▩	☐	☐	☐	▩	☐	☐	☐	☐	☐	☐
Agricultural Research	☐	☐	☐	☐	☐	☐	☐	☐	▩	☐	☐	▩
Michigan State University	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	▩	☐

Figure 5. Attitude shift after viewing sample programs.

The other comparison concerned the correlation between groups for various points along the (learn-not learn) profile. Here the very high degree of correlation in Tables 5 and 6 between all groups has been noted. These findings do not indicate that the two measures both report the same amount or kind of learning.

In the data reported here, however, Cloze Procedure and (learn-not learn) profile data can not be shown to differ.

Table 11

Variance in (learn-not learn) Mean Profile Scores from Viewing TV Film Program on Nutrition

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Rural Non-Farm vs. Farm Residence	.06	2	.03	F = .26 (N.S.)	F (2,2) = 19.00
Male vs. Female Sex	.02	1	.02	F = .17 (N.S.)	F (1,2) = 18.51
Residual Variance	.24	2	.12		
Total	.32	5			

Table 12

Variance in (learn-not learn) Mean Profile Scores from Viewing TV Film Program on Soil Tillage

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Rural Non-Farm vs. Farm Residence	.23	2	.11	F = .57 (N.S.)	F (2,2) = 19.00
Male vs. Female Sex	.56	1	.56	F = 2.82 (N.S.)	F (1,2) = 18.51
Residual Variance	.40	2	.20		
Total	1.19	5			

CHAPTER V

DISCUSSION

Four questions may be raised at this point about the findings on attitude shift, as measured by the evaluative factor of the Semantic Differential. First, do the five "boomerang" shifts for the program on nutrition constitute evidence of lack of impact as compared with the program on soil tillage? The data which suggested some direct relationship between attitude shift and (like-dislike) program profile means do not indicate to the writer grave deficiencies in the program on nutrition. It should be noted that the key concept QUICKIE DIET had a desired shift in the "less favorable" direction, whereas the summary concept was desired by the producers to shift in a "more favorable" direction. This meant that the general audience was required to make a rather fine discrimination as a result of its viewing. The fact that the producers were markedly successful in having as many as 9 of the 12 groups react as desired toward the key concept does not indicate grave production deficiencies. It should also be noted that the "boomerang" shifts were so widely dispersed among concepts and sources that they did not constitute a statistically significant shift in attitude on the part of the general audience.

Second, are the ambiguous results of attitude shift toward the summary concepts of both programs evidence of lack of real success in achieving impact? A negative answer appears in order, because the producers indicated in advance that the concepts selected by the general audience as the key concepts were primary in importance among the sub-topics.

Third, should the programs have been expected to produce desired shifts for all concepts? At this stage, that the programs did not do so is not considered a serious criticism of the impact of the series. The producers indicated in advance the key responses they wished to encourage were: "quickie" diets are frequently dangerous, and larger soil particles are desirable in modern soil tillage. These attitude shifts were achieved, and clusters of related attitudes shifted along with them.

Additional research is necessary before a criterion of effectiveness can be established; none is now known to exist.

Fourth, does the failure for either program to produce statistically significant shifts in attitude toward the sources indicate a real program weakness? While the producers were hopeful of achieving a shift toward MICHIGAN STATE UNIVERSITY, AGRICULTURAL RESEARCH, and COUNTY AGENT, such a result would not have been predicted from previous research on the Semantic Differential (12:189-216). Stated in non-technical terms, these sources laid their favorable reputation on the line in endorsing the concepts promoted in the series. As a result, the shifts were observed among the concepts, not the sources. Moreover, the possibility of a "more favorable" shift was limited in this study, quite aside from the above consideration. The pre-test ratings of these sources were about as high as could possibly be given by the general audience.

So far as the relationship between the (like-dislike) profile and the evaluative factor of the Semantic Differential is concerned, the analyses reported here do not justify the assumption that no relationship does in fact exist. If this problem is to be investigated further, individual program analyzer response measurements are necessary.

It appears to be a reasonable assumption that the moderate correlations between groups using the (like-dislike) scale and the very high positive correlation between groups using the (learn-not learn) scale in rating each program is related to subject-matter familiarity. The group interviews conducted at the close of each laboratory session strongly suggested this possibility. In certain women's groups all Subjects had just completed study units in their clubs on diets and nutrition; in other groups none of the Subjects had done so. In certain men's groups, all the Subjects had actually practiced minimum farm tillage; in other groups the Subjects had never heard of it.

"There may be times when it is important to cover a broad subject. .., but it is usually better to confine one's self to a part that can be well treated in the time allowed (emphasis supplied) (17:65)." It is suggested that the findings of this study pertaining to the extent of subject-matter familiarity constitute experimental evidence in agreement with the above statement. The decision of the producers to confine themselves, for example, to consideration of a small part of the broad subject of human nutrition; namely, the dangers of the "quickie" diet, enabled them to treat that part so well and so comprehensively that, regardless of previous learning, all groups found their knowledge expanded and their attitudes changed as a result of viewing the sample program.

The method of measuring the impact of this series appears applicable to many, if not all, educational television series. The fact that this series content concerned agricultural research does not appear to the writer to have had any unique effect upon the results obtained. Under similar laboratory conditions, where the producers desired to both instruct and change attitudes and could specify the nature of the results they wished to obtain, the method described should work equally well for series devoted to other areas of educational television content.

Another aspect of the applicability of these findings should be noted. These results were obtained under the experimental conditions of the laboratory. The general audience consisted of the total number of Subjects tested, including all sex and residence categories. It is not known, for example, whether all persons living within the area from which the Subjects were enlisted for the study have such favorable attitudes toward the sources. The possibility exists that only persons favorably predisposed toward these sources were inclined to visit the Michigan State University campus for such a purpose. However, equivalent shifts in attitude and gains in learning could be expected from any 120 Subjects selected according to the same procedure.

This is not to say, however, that the research-consumers were ill-advised in accepting the experimental method as the basis for their inquiry. Such findings may be expected to have an important predictive value. As Theodore Newcomb stated in an address before the participants of the Seminar in Educational Broadcast Research, sponsored by the National Association of Educational Broadcasters:

> "First make sure you can find the answer that you seek under the conditions of the laboratory. If you cannot find it there, you can never be sure you have located it by survey or other methods outside the laboratory."[1]

---

[1] Talk by Theodore M. Newcomb, Chairman, Doctoral Program in Social Psychology, University of Michigan, presented at NAEB Seminar on Broadcast Research, The Ohio State University, Columbus, December 11, 1957.

APPENDIX A

METHODOLOGY

The Appendix on Methodology is a supplement to information presented in the prefatory and introductory portions of the report. Taken together, however, these portions plus the Appendix constitute a complete statement of objectives and method.

The study employed the factorial experimental-statistical design, as described in the Introduction and as detailed by Kempthorne (5).

The means by which the empirical data were related to the theoretical propositions have been in the main described in the Introduction. However, little has been said about the assumptions underlying profile data and its relation to the Semantic Differential.

It has been reported that the (like-dislike) scale, representing a bi-polar continuum with a neutral or zero point, provides a valid and reliable means of reporting a Subject's reaction to a television program (3). This means that a profile peak indicates a portion of a program which is "better liked" than does a profile valley. The (like-dislike) scale had been determined to have a very high positive correlation with such other evaluative scales as (interest-disinterest), (agree-disagree), (approve-disapprove) as used with the various types of program analyzers (4).

This study accepted the assumption of previous studies that properly instructed Subjects vary only slightly in their ability to operate the Program Analyzer.

The (learn-not learn) rating scale was also used in profile analysis. Previous studies have indicated that there is a direct positive relation between total learning from an instructional film, and the subjective report obtained from profile data (15).

When the two rating scales are applied to the same program, it has been hypothesized that the combinations of peaks and or valleys between the two scales for the same point within the program suggest the type of content being presented (8:244).

Previous experience of the writer, both in producing broadcast programs and in working with program profiles, has pointed to the suggestion that there may be an ideal shape of the (like-dislike) profile. The writer or producer customarily thinks of this curve in terms of the (interest-disinterest) scale, which as previously noted, is highly similar. Broadcast program writers consciously write to approach this ideal type of profile, in which the interest curve should rise rapidly to a point second only to the climax of the program. By this time some element of suspense should have been planted, and the viewer or listener been thoroughly involved. After this sharp rise, the curve may remain constant at the high level or even drift downward slightly before rising to the climax. After this point the program should close as soon as possible, indicated by a short, sharp drop of the curve (2:170).

The writer suggests that this shape is appropriate to any kind of content--entertainment, instructional interview, or County Agent--so long as the producer is concerned with creating and maintaining the interest of the general audience.

It may be seen that a certain amount of the analysis of the data obtained from the current model of the WKAR-TV Program Analyzer depends for whatever fruitfulness it may have upon the experience of the person making the analysis. Despite the lack of publicity and published findings, program analyzers are currently used extensively in commercial broadcast research, where similar analysis is employed.[1] It was hoped that some hypotheses could be developed which would lead to a technique less dependent upon the researcher.

A program profile mean was defined as the average rating of the 52 points measured at 30-second intervals during the twenty-six minute program. This term will be applied to either program and either scale, as, for example, the (like-dislike) profile mean for the program on nutrition.

A segment mean was defined as the average rating of the points measured at 30-second intervals within the period of the program during which the producers indicated certain specific concepts were being treated. Those interested in copies of the scripts which indicate the location of the rating points may obtain them from the writer upon request.

The laboratory work of the experiment was begun June 3 and completed June 14, 1957. The pre-coded questionnaires were transferred to Hollerith cards, so that many of the computations could be completed mechanically. The analysis was completed in approximately six work weeks, at which time the preliminary report was presented to the research-consumers. The splendid work of the research staff in accomplishing a tremendous amount of work in a brief period has already been acknowledged. Even so, this could not have been accomplished within this space of time had not the techniques of measurement and methods of analysis been thoroughly planned and checked in advance. The assistance of Charles H. Proctor in checking over the proposed techniques and methods was of great help in insuring that the procedure was fitted to the job at hand.

For the convenience of the reader, the techniques of measurement are listed in outline form. It will be obvious that some questions do not permit as rigorous an answer as, for example, the major question of impact. The specific questions, together with the hypotheses and tests, if any, are given below:

Impact

Learning (Cloze Procedure Test)

1. Did the general audience learn from the sample program?
    a. H: The mean of all the Subject difference scores is equal to zero
    b. Test: Shown in Tables 1 and 2.
2. Was learning the same for all groups?
    a. H: The group means of the difference scores are equal.
    b. Test: Shown in Tables 1 and 2.
3. Was the learning of the sub-topics the same for all groups?
    a. H: Group means of sub-topic difference scores are equal.

---

[1] Personal interview with Herta Herzog, Vice President, McCann-Erickson Advertising Agency, Columbus, Ohio, December 12, 1957.

b. Test: Shown in Tables A15 through A24.

Attitude Shift (Semantic Differential Test)

4. Did the group attitude toward a concept shift?

   a. H: The probability of a desired change is one-half (14).

   b. Test: If the (1):(9) split or more unbalanced splits, in the same direction only, had a probability less than .063 and/or if the (1)+(4)+(2):(6)+(8)+(9) split or more unvalanced splits in the same direction only had a probability of less than .063, then reject H. The level of significance of this two-roads-to-rejection test does not exceed 10%.

   c. See page 50 for description of table showing cells (1) through (9).

5. Did the general audience attitude toward a concept shift?

   a. H: The number of groups for which H:4a is rejected is consistent with a 10% level of significance for the test on each group.

   b. Test: If there are three or more of the 12 groups which reject H:4a., then reject H. The level of statistical significance is 11%.

Program Appeal

(like-dislike) Profile

6. Did the program appeal to the general audience?

   a. H: The audience is indifferent to or dislikes the program.

   b. Test: If the grouped mean of all the program means is equal to or greater than 3.500, and if the poorest mean rating for any point in the program is not less than 2.000, then reject the hypothesis. This is an artibrary criterion selected by the writer on the basis of previous experience in profile analysis.

7. Was the appeal equal for all groups?

   a. H: The group program profile means are equal.

   b. Test: Shown in Tables 3 and 4.

8. Was the appeal of one sample program greater than that of the other?

   a. H: The difference between the mean profile rating for the program on nutrition and on soil tillage is zero.

   b. Test: If the standard error of the difference in means in small independent samples is of a size that the C.R. equals 1.81, the hypothesis may be rejected at the .05 level of statistical significance.

9. Did each part of the program have equal appeal for the groups?

a. H: Rho equals zero, using the estimate of tetrachoric *r*.

b. Test: None. Consider arbitrarily an *r* of approximately +.4 a moderate correlation and +.8 or better very high.

Series

10. Did the series have an impact upon the general audience?

    a. H: The series has no desired impact upon the general audience.

    b. Test: None. Reject H if both sample programs have impact upon general audience. This arbitrary criterion was agreed upon by the research-consumers in advance of laboratory testing.

11. Did the series have appeal for the general audience?

    a. H: The series has no desired appeal for the general audience.

    b. Test: None. Reject H if both sample programs have appeal for general audience.

12. Did the series affect the attitude of the general audience toward the sources?

    a. H: The series did not cause any general audience attitude shift toward a source.

    b. Test: None. Reject H if for any one source both programs show a general audience attitude shift.

Program Evaluation Measures

13. Do groups with an initially favorable attitude toward a topic rate a related program higher than do those with an attitude not initially favorable?

    a. H: The product-moment correlation between summary concept pre-te scores and program profile means is equal to zero.

    b. Test: If the product-moment correlation is equal to or less than r_α, accept H. Test at $r_\alpha = .05$ significance level. See Table 8.

14. Does *set* induced by profile instructions relate to shifts in attitud

    a. H: Total attitude shifts for both programs under (*like-dislike*) ratings are equal to total shifts under (*learn-not learn*) rating

    b. Test: Inspection of data in Table 9.

15. Do groups with higher program profile means report shifts toward a greater number of concepts than do groups with lower program profile means?

    a. H: There is no relation between (*like-dislike*) program profile means and the number of shifts per program.

b. Test: Inspection of data in Table 8.

16. Are high segment profile means related to attitude shift?

a. H: The (*like-dislike*) profile segment mean for the concept having an attitude shift equals the grouped mean of all profile segments where no shift occurred.

b. Test: Inspection of data in Table 10.

17. Is the key concept related to the program profile mean?

a. H: The mean of the program profile means for groups shifting in attitude toward the key concept is equal to the mean of the profile means for groups not having such a shift.

b. Test: Inspection of data in Table 10.

The procedure used to determine shifts in attitudes measured by Semantic Differential items was suggested by Charles H. Proctor, based upon procedures mentioned by McNemar and Mosteller (7,11). The twelve experimental groups were dealt with separately; concepts and sources were handled separately; shifts between pre-and post-tests were characterized as *up* (shift in "more favorable" direction), *down* (shift in "less favorable" direction), and *same*. For each concept and source the basic data on attitude shifts on the (*nice-awful*) and (*good-bad*) scales of the evaluative factor appeared in a 3 by 3 table:

		(*good-bad*) Scale		
		Up	Same	Down
(*nice-awful*) Scale	Up	(1)	(2)	(3)
	Same	(4)	(5)	(6)
	Down	(7)	(8)	(9)

For example, in cell (3) appeared the number of Subjects in the group of 10 who shifted up on the (*nice-awful*) scale and down on the (*good-bad*) scale.

The testing procedure has been described above. However, as a further step, experimental groups of the same sex and residence characteristics were combined and the test run on the combined (1)+(4)+(2): (6)+(8)+(9) split.

This step was done to provide data approximately equivalent to that obtained for the learning difference scores by analysis of variance.

The systematic rotation of the Form of Cloze Procedure Pre-Test, the type of Program Analyzer rating scale, and the sample program of the series is shown at the top of the next page.

The equipment and apparatus involved in the laboratory measurements has been described in the Introduction.

Description	Group No.	Form of C.P. Pre-test	Profile Scale	Sample Program
		(First Half of Laboratory Session)		
Urban Females	I	Nu*	(Learn-not Learn)	Nutrition
Urban Females	II	So/	(Learn-not Learn)	Soil Tillage
Urban Males	III	Nu*	(Learn-not Learn)	Nutrition
Urban Males	IV	So/	(Learn-not Learn)	Soil Tillage
Rural Non-farm Females	V	So/	(Like-Dislike)	Soil Tillage
Rural Non-farm Females	VI	Nu*	(Like-Dislike)	Nutrition
Rural Non-farm Males	VII	So/	(Like-Dislike)	Soil Tillage
Rural Non-farm Males	VIII	Nu*	(Like-Dislike)	Nutrition
Farm Females	IX	Nu*	(Learn-not Learn)	Nutrition
Farm Females	X	So/	(Learn-not Learn)	Soil Tillage
Farm Males	XI	Nu*	(Learn-not Learn)	Nutrition
Farm Males	XII	So/	(Learn-not Learn)	Soil Tillage
		(Second Half of Laboratory Session)		
Urban Females	I	So*	(Like-Dislike)	Soil Tillage
Urban Females	II	Nu/	(Like-Dislike)	Nutrition
Urban Males	III	So*	(Like-Dislike)	Soil Tillage
Urban Males	IV	Nu/	(Like-Dislike)	Nutrition
Rural Non-farm Females	V	Nu*	(Learn-not Learn)	Nutrition
Rural Non-farm Females	VI	So/	(Learn-not Learn)	Soil Tillage
Rural Non-farm Males	VII	Nu*	(Learn-not Learn)	Nutrition
Rural Non-farm Males	VIII	So*	(Learn-not Learn)	Soil Tillage
Farm Females	IX	So/	(Like-Dislike)	Soil Tillage
Farm Females	X	Nu/	(Like-Dislike)	Nutrition
Farm Males	XI	So*	(Like-Dislike)	Soil Tillage
Farm Males	XII	Nu/	(Like-Dislike)	Nutrition

APPENDIX B

TEST FORMS

Independent Research Measurements
Evanston, Illinois

Study 573 M
June, 1957

DATA SHEET--IMPACT STUDY

Name: ______________________________

Age (Mark (x) in square that applies):

21 - 24 years 1 ☐
25 - 34 years 2 ☐
35 - 44 years 3 ☐
45 - 54 years 4 ☐
55 - 64 years 5 ☐
65 years & over 6 ☐

Education (Mark (x) in square that applies):

0 - 8 yr Schooling 1 ☐
High School 2 ☐
Some College 3 ☐
Completed College 4 ☐
Post Grad. Study 5 ☐

Set Ownership (Mark (x) in square that applies):

TV set receive WKAR-TV, UHF Channel 60 1 ______
TV set receives VHF only, Channels 2-13 2 ______

Radio Set only, No TV 3 ______

No radio, No TV 4 ______

DO NOT MARK IN THIS SPACE, CARD 9

G# ____________ R# ____________
C 1, 2 C 3, 4

S# 573
C 5, 6, 7

A# ____________
C 8

E# ____________
C 9

D# ____________
C 10, 11

T# ____________
C 78

(8770)

Independent Research Measurements
Evanston, Illinois

Study 573M
June, 1957

FACE SHEET -- SEMANTIC DIFFERENTIAL -- NuPre

Name: ____________________ LEAVE BLANK GR# ____________

CARD #1 C 1, 2, 3, 4

		Col.	Punch
CENTRAL BODY CORE	Nice:___:___:___:___:___:___:___:Awful	12	____
QUICKIE DIET	Strong:___:___:___:___:___:___:___:Weak	13	____
WEIGHT CONTROL	Large:___:___:___:___:___:___:___:Small	14	____
CALORIES	Active:___:___:___:___:___:___:___:Passive	15	____
COUNTY AGENT	Fast:___:___:___:___:___:___:___:Slow	16	____
RESPIRATION METER	Good:___:___:___:___:___:___:___:Bad	17	____
AGRICULTURAL RESEARCH	Nice:___:___:___:___:___:___:___:Awful	18	____
CENTRAL BODY CORE	Strong:___:___:___:___:___:___:___:Weak	19	____
QUICKIE DIET	Large:___:___:___:___:___:___:___:Small	20	____
WEIGHT CONTROL	Active:___:___:___:___:___:___:___:Passive	21	____
CALORIES	Fast:___:___:___:___:___:___:___:Slow	22	____
COUNTY AGENT	Good:___:___:___:___:___:___:___:Bad	23	____
HUMAN NUTRITION	Nice:___:___:___:___:___:___:___:Awful	24	____
AGRICULTURAL RESEARCH	Strong:___:___:___:___:___:___:___:Weak	25	____
CENTRAL BODY CORE	Large:___:___:___:___:___:___:___:Small	26	____
QUICKIE DIET	Active:___:___:___:___:___:___:___:Passive	27	____
WEIGHT CONTROL	Fast:___:___:___:___:___:___:___:Slow	28	____
CALORIES	Good:___:___:___:___:___:___:___:Bad	29	____
MICHIGAN STATE UNIVERSITY	Nice:___:___:___:___:___:___:___:Awful	30	____
HUMAN NUTRITION	Strong:___:___:___:___:___:___:___:Weak	31	____
AGRICULTURAL RESEARCH	Large:___:___:___:___:___:___:___:Small	32	____
CENTRAL BODY CORE	Active:___:___:___:___:___:___:___:Passive	33	____
QUICKIE DIET	Fast:___:___:___:___:___:___:___:Slow	34	____
WEIGHT CONTROL	Good:___:___:___:___:___:___:___:Bad	35	____
RESPIRATION METER	Nice:___:___:___:___:___:___:___:Awful	36	____

Study 573M - June, 1957
NuPre

Page 2

		Col	Punch
MICHIGAN STATE UNIVERSITY	Strong:___:___:___:___:___:___:___:Weak	37	___
HUMAN NUTRITION	Large:___:___:___:___:___:___:___:Small	38	___
AGRICULTURAL RESEARCH	Active:___:___:___:___:___:___:___:Passive	39	___
CENTRAL BODY CORE	Fast:___:___:___:___:___:___:___:Slow	40	___
QUICKIE DIET	Good:___:___:___:___:___:___:___:Bad	41	___
COUNTY AGENT	Nice:___:___:___:___:___:___:___:Awful	42	___
RESPIRATION METER	Strong:___:___:___:___:___:___:___:Weak	43	___
MICHIGAN STATE UNIVERSITY	Large:___:___:___:___:___:___:___:Small	44	___
HUMAN NUTRITION	Active:___:___:___:___:___:___:___:Passive	45	___
AGRICULTURAL RESEARCH	Fast:___:___:___:___:___:___:___:Slow	46	___
CENTRAL BODY CORE	Good:___:___:___:___:___:___:___:Bad	47	___
CALORIES	Nice:___:___:___:___:___:___:___:Awful	48	___
COUNTY AGENT	Strong:___:___:___:___:___:___:___:Weak	49	___
RESPIRATION METER	Large:___:___:___:___:___:___:___:Small	50	___
MICHIGAN STATE UNIVERSITY	Active:___:___:___:___:___:___:___:Passive	51	___
HUMAN NUTRITION	Fast:___:___:___:___:___:___:___:Slow	52	___
AGRICULTURAL RESEARCH	Good:___:___:___:___:___:___:___:Bad	53	___
WEIGHT CONTROL	Nice:___:___:___:___:___:___:___:Awful	54	___
CALORIES	Strong:___:___:___:___:___:___:___:Weak	55	___
COUNTY AGENT	Large:___:___:___:___:___:___:___:Small	56	___
RESPIRATION METER	Active:___:___:___:___:___:___:___:Passive	57	___
MICHIGAN STATE UNIVERSITY	Fast:___:___:___:___:___:___:___:Slow	58	___
HUMAN NUTRITION	Good:___:___:___:___:___:___:___:Bad	59	___
QUICKIE DIET	Nice:___:___:___:___:___:___:___:Awful	60	___
WEIGHT CONTROL	Strong:___:___:___:___:___:___:___:Weak	61	___
CALORIES	Large:___:___:___:___:___:___:___:Small	62	___
COUNTY AGENT	Active:___:___:___:___:___:___:___:Passive	63	___
RESPIRATION METER	Fast:___:___:___:___:___:___:___:Slow	64	___
MICHIGAN STATE UNIVERSITY	Good:___:___:___:___:___:___:___:Bad	65	___

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Independent Research Measurements
Evanston, Illinois

Study 573M
June, 1957

FACE SHEET -- SEMANTIC DIFFERENTIAL -- NuPos

Name: ______________________________ LEAVE BLANK GR# ______________

CARD #2

C 1, 2, 3, 4

		Col.	Punch
CALORIES	Strong:___:___:___:___:___:___:___:Weak	12	
QUICKIE DIET	Good:___:___:___:___:___:___:___:Bad	13	
MICHIGAN STATE UNIVERSITY	Fast:___:___:___:___:___:___:___:Slow	14	
RESPIRATION METER	Active:___:___:___:___:___:___:___:Passive	15	
WEIGHT CONTROL	Nice:___:___:___:___:___:___:___:Awful	16	
HUMAN NUTRITION	Large:___:___:___:___:___:___:___:Small	17	
CENTRAL BODY CORE	Strong:___:___:___:___:___:___:___:Weak	18	
CALORIES	Good:___:___:___:___:___:___:___:Bad	19	
QUICKIE DIET	Fast:___:___:___:___:___:___:___:Slow	20	
MICHIGAN STATE UNIVERSITY	Active:___:___:___:___:___:___:___:Passive	21	
RESPIRATION METER	Nice:___:___:___:___:___:___:___:Awful	22	
WEIGHT CONTROL	Large:___:___:___:___:___:___:___:Small	23	
COUNTY AGENT	Strong:___:___:___:___:___:___:___:Weak	24	
CENTRAL BODY CORE	Good:___:___:___:___:___:___:___:Bad	25	
CALORIES	Fast:___:___:___:___:___:___:___:Slow	26	
QUICKIE DIET	Active:___:___:___:___:___:___:___:Passive	27	
MICHIGAN STATE UNIVERSITY	Nice:___:___:___:___:___:___:___:Awful	28	
RESPIRATION METER	Large:___:___:___:___:___:___:___:Small	29	
AGRICULTURAL RESEARCH	Strong:___:___:___:___:___:___:___:Weak	30	
COUNTY AGENT	Good:___:___:___:___:___:___:___:Bad	31	
CENTRAL BODY CORE	Fast:___:___:___:___:___:___:___:Slow	32	
CALORIES	Active:___:___:___:___:___:___:___:Passive	33	
QUICKIE DIET	Nice:___:___:___:___:___:___:___:Awful	34	
MICHIGAN STATE UNIVERSITY	Large:___:___:___:___:___:___:___:Small	35	
HUMAN NUTRITION	Strong:___:___:___:___:___:___:___:Weak	36	

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NuPos

		Col.	Punch
AGRICULTURAL RESEARCH	Good:___:___:___:___:___:___:___:Bad	37	____
COUNTY AGENT	Fast:___:___:___:___:___:___:___:Slow	38	____
CENTRAL BODY CORE	Active:___:___:___:___:___:___:___:Passive	39	____
CALORIES	Nice:___:___:___:___:___:___:___:Awful	40	____
QUICKIE DIET	Large:___:___:___:___:___:___:___:Small	41	____
WEIGHT CONTROL	Strong:___:___:___:___:___:___:___:Weak	42	____
HUMAN NUTRITION	Good:___:___:___:___:___:___:___:Bad	43	____
AGRICULTURAL RESEARCH	Fast:___:___:___:___:___:___:___:Slow	44	____
COUNTY AGENT	Active:___:___:___:___:___:___:___:Passive	45	____
CENTRAL BODY CORE	Nice:___:___:___:___:___:___:___:Awful	46	____
CALORIES	Large:___:___:___:___:___:___:___:Small	47	____
RESPIRATION METER	Strong:___:___:___:___:___:___:___:Weak	48	____
WEIGHT CONTROL	Good:___:___:___:___:___:___:___:Bad	49	____
HUMAN NUTRITION	Fast:___:___:___:___:___:___:___:Slow	50	____
AGRICULTURAL RESEARCH	Active:___:___:___:___:___:___:___:Passive	51	____
COUNTY AGENT	Nice:___:___:___:___:___:___:___:Awful	52	____
CENTRAL BODY CORE	Large:___:___:___:___:___:___:___:Small	53	____
MICHIGAN STATE UNIVERSITY	Strong:___:___:___:___:___:___:___:Weak	54	____
RESPIRATION METER	Good:___:___:___:___:___:___:___:Bad	55	____
WEIGHT CONTROL	Fast:___:___:___:___:___:___:___:Slow	56	____
HUMAN NUTRITION	Active:___:___:___:___:___:___:___:Passive	57	____
AGRICULTURAL RESEARCH	Nice:___:___:___:___:___:___:___:Awful	58	____
COUNTY AGENT	Large:___:___:___:___:___:___:___:Small	59	____
QUICKIE DIET	Strong:___:___:___:___:___:___:___:Weak	60	____
MICHIGAN STATE UNIVERSITY	Good:___:___:___:___:___:___:___:Bad	61	____
RESPIRATION METER	Fast:___:___:___:___:___:___:___:Slow	62	____
WEIGHT CONTROL	Active:___:___:___:___:___:___:___:Passive	63	____
HUMAN NUTRITION	Nice:___:___:___:___:___:___:___:Awful	64	____
AGRICULTURAL RESEARCH	Large:___:___:___:___:___:___:___:Small	65	____

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Independent Research Measurements
Evanston, Illinois

Study 573M
June, 1957

FACE SHEET -- SEMANTIC DIFFERENTIAL -- SoPre

Name:____________________ LEAVE BLANK GR#____________
C 1, 2, 3, 4

CARD #3

		Col.	Punch
EXPERIMENT STATION	Nice:___:___:___:___:___:___:___:Awful	12	____
WEED CONTROL	Strong:___:___:___:___:___:___:___:Weak	13	____
LARGER SOIL PARTICLES	Large:___:___:___:___:___:___:___:Small	14	____
GROWING SEASON	Active:___:___:___:___:___:___:___:Passive	15	____
COUNTY AGENT	Fast:___:___:___:___:___:___:___:Slow	16	____
FIELD WEIGHING APPARATUS	Good:___:___:___:___:___:___:___:Bad	17	____
AGRICULTURAL RESEARCH	Nice:___:___:___:___:___:___:___:Awful	18	____
EXPERIMENT STATION	Strong:___:___:___:___:___:___:___:Weak	19	____
WEED CONTROL	Large:___:___:___:___:___:___:___:Small	20	____
LARGER SOIL PARTICLES	Active:___:___:___:___:___:___:___:Passive	21	____
GROWING SEASON	Fast:___:___:___:___:___:___:___:Slow	22	____
COUNTY AGENT	Good:___:___:___:___:___:___:___:Bad	23	____
MINIMUM SOIL TILLAGE	Nice:___:___:___:___:___:___:___:Awful	24	____
AGRICULTURAL RESEARCH	Strong:___:___:___:___:___:___:___:Weak	25	____
EXPERIMENT STATION	Large:___:___:___:___:___:___:___:Small	26	____
WEED CONTROL	Active:___:___:___:___:___:___:___:Passive	27	____
LARGER SOIL PARTICLES	Fast:___:___:___:___:___:___:___:Slow	28	____
GROWING SEASON	Good:___:___:___:___:___:___:___:Bad	29	____
MICHIGAN STATE UNIVERSITY	Nice:___:___:___:___:___:___:___:Awful	30	____
MINIMUM SOIL TILLAGE	Strong:___:___:___:___:___:___:___:Weak	31	____
AGRICULTURAL RESEARCH	Large:___:___:___:___:___:___:___:Small	32	____
EXPERIMENT STATION	Active:___:___:___:___:___:___:___:Passive	33	____
WEED CONTROL	Fast:___:___:___:___:___:___:___:Slow	34	____
LARGER SOIL PARTICLES	Good:___:___:___:___:___:___:___:Bad	35	____
FIELD WEIGHING APPARATUS	Nice:___:___:___:___:___:___:___:Awful	36	____

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		Col.	Punch
MICHIGAN STATE UNIVERSITY	Strong:___:___:___:___:___:___:___:Weak	37	___
MINIMUM SOIL TILLAGE	Large:___:___:___:___:___:___:___:Small	38	___
AGRICULTURAL RESEARCH	Active:___:___:___:___:___:___:___:Passive	39	___
EXPERIMENT STATION	Fast:___:___:___:___:___:___:___:Slow	40	___
WEED CONTROL	Good:___:___:___:___:___:___:___:Bad	41	___
COUNTY AGENT	Nice:___:___:___:___:___:___:___:Awful	42	___
FIELD WEIGHING APPARATUS	Strong:___:___:___:___:___:___:___:Weak	43	___
MICHIGAN STATE UNIVERSITY	Large:___:___:___:___:___:___:___:Small	44	___
MINIMUM SOIL TILLAGE	Active:___:___:___:___:___:___:___:Passive	45	___
AGRICULTURAL RESEARCH	Fast:___:___:___:___:___:___:___:Slow	46	___
EXPERIMENT STATION	Good:___:___:___:___:___:___:___:Bad	47	___
GROWING SEASON	Nice:___:___:___:___:___:___:___:Awful	48	___
COUNTY AGENT	Strong:___:___:___:___:___:___:___:Weak	49	___
FIELD WEIGHING APPARATUS	Large:___:___:___:___:___:___:___:Small	50	___
MICHIGAN STATE UNIVERSITY	Active:___:___:___:___:___:___:___:Passive	51	___
MINIMUM SOIL TILLAGE	Fast:___:___:___:___:___:___:___:Slow	52	___
AGRICULTURAL RESEARCH	Good:___:___:___:___:___:___:___:Bad	53	___
LARGER SOIL PARTICLES	Nice:___:___:___:___:___:___:___:Awful	54	___
GROWING SEASON	Strong:___:___:___:___:___:___:___:Weak	55	___
COUNTY AGENT	Large:___:___:___:___:___:___:___:Small	56	___
FIELD WEIGHING APPARATUS	Active:___:___:___:___:___:___:___:Passive	57	___
MICHIGAN STATE UNIVERSITY	Fast:___:___:___:___:___:___:___:Slow	58	___
MINIMUM SOIL TILLAGE	Good:___:___:___:___:___:___:___:Bad	59	___
WEED CONTROL	Nice:___:___:___:___:___:___:___:Awful	60	___
LARGER SOIL PARTICLES	Strong:___:___:___:___:___:___:___:Weak	61	___
GROWING SEASON	Large:___:___:___:___:___:___:___:Small	62	___
COUNTY AGENT	Active:___:___:___:___:___:___:___:Passive	63	___
FIELD WEIGHING APPARATUS	Fast:___:___:___:___:___:___:___:Slow	64	___
MICHIGAN STATE UNIVERSITY	Good:___:___:___:___:___:___:___:Bad	65	___

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Independent Research Measurements
Evanston, Illinois

Study 573M
June, 1957

FACE SHEET -- SEMANTIC DIFFERENTIAL -- SoPos

Name: ______________________ LEAVE BLANK GR#______________
C 1, 2, 3, 4

CARD #4

		Col.	Punch
GROWING SEASON	Strong:___:___:___:___:___:___:___:Weak	12	_____
WEED CONTROL	Good:___:___:___:___:___:___:___:Bad	13	_____
MICHIGAN STATE UNIVERSITY	Fast:___:___:___:___:___:___:___:Slow	14	_____
FIELD WEIGHING APPARATUS	Active:___:___:___:___:___:___:___:Passive	15	_____
LARGER SOIL PARTICLES	Nice:___:___:___:___:___:___:___:Awful	16	_____
MINIMUM SOIL TILLAGE	Large:___:___:___:___:___:___:___:Small	17	_____
EXPERIMENT STATION	Strong:___:___:___:___:___:___:___:Weak	18	_____
GROWING SEASON	Good:___:___:___:___:___:___:___:Bad	19	_____
WEED CONTROL	Fast:___:___:___:___:___:___:___:Slow	20	_____
MICHIGAN STATE UNIVERSITY	Active:___:___:___:___:___:___:___:Passive	21	_____
FIELD WEIGHING APPARATUS	Nice:___:___:___:___:___:___:___:Awful	22	_____
LARGER SOIL PARTICLES	Large:___:___:___:___:___:___:___:Small	23	_____
COUNTY AGENT	Strong:___:___:___:___:___:___:___:Weak	24	_____
EXPERIMENT STATION	Good:___:___:___:___:___:___:___:Bad	25	_____
GROWING SEASON	Fast:___:___:___:___:___:___:___:Slow	26	_____
WEED CONTROL	Active:___:___:___:___:___:___:___:Passive	27	_____
MICHIGAN STATE UNIVERSITY	Nice:___:___:___:___:___:___:___:Awful	28	_____
FIELD WEIGHING APPARATUS	Large:___:___:___:___:___:___:___:Small	29	_____
AGRICULTURAL RESEARCH	Strong:___:___:___:___:___:___:___:Weak	30	_____
COUNTY AGENT	Good:___:___:___:___:___:___:___:Bad	31	_____
EXPERIMENT STATION	Fast:___:___:___:___:___:___:___:Slow	32	_____
GROWING SEASON	Active:___:___:___:___:___:___:___:Passive	33	_____
WEED CONTROL	Nice:___:___:___:___:___:___:___:Awful	34	_____
MICHIGAN STATE UNIVERSITY	Large:___:___:___:___:___:___:___:Small	35	_____
MINIMUM SOIL TILLAGE	Strong:___:___:___:___:___:___:___:Weak	36	_____

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Page 2

		Col.	Punch
AGRICULTURAL RESEARCH	Good:___:___:___:___:___:___:___:Bad	37	____
COUNTY AGENT	Fast:___:___:___:___:___:___:___:Slow	38	____
EXPERIMENT STATION	Active:___:___:___:___:___:___:___:Passive	39	____
GROWING SEASON	Nice:___:___:___:___:___:___:___:Awful	40	____
WEED CONTROL	Large:___:___:___:___:___:___:___:Small	41	____
LARGER SOIL PARTICLES	Strong:___:___:___:___:___:___:___:Weak	42	____
MINIMUM SOIL TILLAGE	Good:___:___:___:___:___:___:___:Bad	43	____
AGRICULTURAL RESEARCH	Fast:___:___:___:___:___:___:___:Slow	44	____
COUNTY AGENT	Active:___:___:___:___:___:___:___:Passive	45	____
EXPERIMENT STATION	Nice:___:___:___:___:___:___:___:Awful	46	____
GROWING SEASON	Large:___:___:___:___:___:___:___:Small	47	____
FIELD WEIGHING APPARATUS	Strong:___:___:___:___:___:___:___:Weak	48	____
LARGER SOIL PARTICLES	Good:___:___:___:___:___:___:___:Bad	49	____
MINIMUM SOIL TILLAGE	Fast:___:___:___:___:___:___:___:Slow	50	____
AGRICULTURAL RESEARCH	Active:___:___:___:___:___:___:___:Passive	51	____
COUNTY AGENT	Nice:___:___:___:___:___:___:___:Awful	52	____
EXPERIMENT STATION	Large:___:___:___:___:___:___:___:Small	53	____
MICHIGAN STATE UNIVERSITY	Strong:___:___:___:___:___:___:___:Weak	54	____
FIELD WEIGHING APPARATUS	Good:___:___:___:___:___:___:___:Bad	55	____
LARGER SOIL PARTICLES	Fast:___:___:___:___:___:___:___:Slow	56	____
MINIMUM SOIL TILLAGE	Active:___:___:___:___:___:___:___:Passive	57	____
AGRICULTURAL RESEARCH	Nice:___:___:___:___:___:___:___:Awful	58	____
COUNTY AGENT	Large:___:___:___:___:___:___:___:Small	59	____
WEED CONTROL	Strong:___:___:___:___:___:___:___:Weak	60	____
MICHIGAN STATE UNIVERSITY	Good:___:___:___:___:___:___:___:Bad	61	____
FIELD WEIGHING APPARATUS	Fast:___:___:___:___:___:___:___:Slow	62	____
LARGER SOIL PARTICLES	Active:___:___:___:___:___:___:___:Passive	63	____
MINIMUM SOIL TILLAGE	Nice:___:___:___:___:___:___:___:Awful	64	____
AGRICULTURAL RESEARCH	Large:___:___:___:___:___:___:___:Small	65	____

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Independent Research Measurements
Evanston, Illinois CLOZE PROCEDURE--Nu-*

Study 573M
June, 1957

Name: ______________________ LEAVE BLANK GR# ________ Card: 11
C 1,2,3,4

The foods __________ eat contain calories.....Others, __________ this vegetable salad are __________ in calories.....The calories __________ food are either burned __________ to give us the __________ we need or are __________ stored on our bodies __________ fat.....If he doesn't __________ himself his weight sneaks __________ to 195 pounds..... Consider __________ three girls, for example..... __________ lucky..... Betty would like __________ gain more weight.....As __________ Carol, she has no __________ putting on weight.....Carol, __________ the rest of us __________ have a tendency to __________ overweight, may be tempted __________ eat special foods or __________ special diets guaranteed to __________ weight in a hurry..... __________ respiration meter measures the __________ of air Betty is __________ out as she exercises..... __________ the apparagus measures the __________ amount of air she __________ out.....The exhaled air __________ then transferred to these __________ for analysis.....We know __________ takes oxygen to convert __________ into energy.....But what __________ don't understand, Dr. Cedarquist, __________ why those of us __________ are overweight can't go __________ one of those "quickie __________ " or even drink nothing __________ water for a few __________, and bring our weight __________ down to where it __________ to be.....Now actually __________ is this central core __________ the body with which __________ are most interested.....So __________ every diet, whether it __________ to gain weight, to __________ weight or maintain weight __________ contain a liberal amount __________ proteins, minerals, vitamins every day..... __________ a weight reduction diet __________ built around one or two foods.....

__________ C 12,13 __________ C 14,15 __________ C 16,17 __________ C 18,19 __________ C 20,21 __________ C 22,23

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Independent Research Measurements
Evanston, Illinois

CLOZE PRODEDURE--Nu-1

Study 573M
June, 1957

Name: __________ LEAVE BLANK GR# __________ Card: 11
C 1,2,3,4

Some foods, __________ rich desserts, are high __________ calories.....
The fuel we __________ in our bodies to __________ us energy is measured
__________ calories.....This gentleman has __________ tendency to gain
weight..... __________ most of us have __________ problem of controlling
our __________.....This is Alice.....No __________ what she eats and
__________ much, her weight stays __________ the same.....She eats
__________ she can, but no __________ how she tries, she __________
seem to gain an __________.....In fact, she has __________ watch her diet
closely __________ maintain her normal weight..... __________ breathes
into this tube..... __________ small percentage of the __________ she
breathes out is __________ in this bag.....The __________ meter told us
how __________ air Betty used while __________ exercised.....So we now
__________ estimate the number of __________ she used during exercise
__________ measuring the amount of __________ she used.....Either we
__________ burn them up as __________ energy and get rid __________
them through exercise or __________ can just keep piling __________ on as
body fat..... __________ is no quick and __________ way to lose weight.....
__________ is made up for __________ most part of proteins, __________,
and vitamins and every __________ a part of this __________ away and is
discarded __________ unless it is replaced, __________ is done to this
__________ essential part of the __________.....The water diet which
__________ were talking about is __________ free of these essential
__________ and that means destruction __________ take place which would
__________ be replaced.....

C 24,25 C 26,27 C 28,29 C 30,31 C 32,33 C 34,35

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Independent Research Measurements Study 573M
Evanston, Illinois CLOZE PROCEDURE--So-* June, 1957

Name: ______________________ LEAVE BLANK GR#__________ Card: 12
C 1,2,3,4

That's really __________ for county agricultural extension __________
.....I show the farmer __________ the scientist has developed __________
I tell the scientist __________ the farmer needs.....Time __________ the
farmer is money..... __________ answers to many of __________ questions
can be answered __________ agricultural researchers.....Questions concerning
__________ only the more fertile __________ soil but the equally
__________ sub-soil.....Questions about erosion, __________ constant
threat to our __________ soil.....Will the land __________ provide such
abundance?.....Will __________ ingenuity win out in __________ battle
to maintain the __________ of vital plant foods?..... __________ perhaps
the most important __________ is the tilling of __________ soil itself
.....Plowing, preparing __________ soil and planting all __________
one operation.....The potential __________ to the farmer are __________
.....Under ordinary tillage the __________ is broken up into __________
particles which tend to __________ the free passage of __________ and
moisture to the __________ .....With minimum tillage the __________ of
the soil doesn't __________ smooth but maybe crops __________ look at
soil the __________ people do.....Well, moisture __________ to soften
the seed __________ and supply the needs __________ emerging sprouts
and roots..... __________ deprive the crop of __________ and even the
vital __________ of the sun itself..... __________ of the most promising
__________ of minimum tillage is __________ of more effective weed
__________ .....The area between the __________ is left loose and
__________ .....The field weight is __________ recorded.....Since the
moisture __________ of corn may vary, __________ from each are taken
__________ subsequent moisture tests.....

__________ __________ __________ __________ __________ __________
C 12,13 C 14,15 C 16,17 C 18,19 C 20,21 C 22,23

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Independent Research Measurements Study 573M
Evanston, Illinois CLOZE PROCEDURE--So-/ June, 1957

Name: ______________________ LEAVE BLANK GR#__________ Card: 12
C 1,2,3,4

I'm a __________ agent.....I like my __________ and I sure meet
__________ fine folks.....His growing __________ is all too short
__________ every minute of every __________ day brings his crop
__________ much closer to the __________ killing frost of fall.....
__________ experiment stations all over __________ nation these men are
__________ working to answer the __________ questions having to do
__________ the soil.....And many __________ questions must be answered.....
__________ about yields.....And what __________ fertilizers?.....What part
does __________ play in the future __________ crop production?.....The
basic __________ of soil preparation have __________ only slightly over
the __________ several centuries.....This type __________ tilling repre-
sents a minimum __________ soil preparation.....For example, __________
can save all power __________ to direct tillage implements __________ the
fields plus additional __________ on machinery used and __________ course
the most valuable __________, the farmer's time.....How __________ the
soil look under __________ two types of treatment?..... __________ minimum
tillage the soil __________ left in larger particles __________ numerous
air pockets insuring __________ air and moisture supply __________ the
seed.....After all, __________ does a seed need?..... __________ are an
ancient foe __________ the farmer's fields.....Conventional __________ of
soil preparation encourage __________ growth of weeds.....With __________
over operation the soil __________ packed only in the __________ where the
seed is __________.....Growth between __________ rows is inhibited.....
The __________ yield from each plot __________ weighed with the use
__________ a unique field weighing __________.....

C 24,25 C 26,27 C 28,29 C 30,31 C 32,33 C 34,35

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Table A13

Summary of Data for Sample Program on Nutrition*

Male

	Gp. 3: Urban			Gp. 7: Rural Non-Farm			Gp. 11: Farm		
	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts
Total	70	2.000		14	2.375		53	2.625	
"Quickie Diet"	0	2.000	0-4/S 0-5/S	- 3	2.375	0-2/N 2-2/N	14	3.000	0-5/S 0-8/S
"Human Nutrition"			0-2/N 0-7/S			1-1/N 2-3/N			1-0/N 6-1/S
"Central Body Core"	13	2.825	1-1/N 4-2/N	-10	3.250	2-0/N 5-1/N	1	3.825	5-1/N 7-1/S
"Respiration Meter"	43	3.375	1-0/N 3-3/N	28	3.125	1-1/N 4-3/N	39	4.500	2-2/N 4-4/N
"Weight Control"	16	1.625	2-0/N 7-1/S	15	2.000	2-1/N 4-2/N	6	2.125	2-2/N 4-4/N
"Calories"	- 2	1.625	2-0/N 3-4/N	-16	2.000	3-1/N 3-6/N	- 7	2.125	2-0/N 4-2/N
"County Agent"			2-1/N 2-3/N			1-1/N 3-1/N			0-0/N 0-4/S
"Agricultural Research"			0-0/N 2-5/N			1-4/N 4-2/N			0-0/N 2-1/N
"Mich. State University"			0-1/N 1-4/N			1-0/N 2-3/N			0-0/N 0-1/N

Male

	Gp. 4: Urban			Gp. 8: Rural Non-Farm			Gp. 12: Farm		
	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts
Total	59	3.375		11	4.000		55	3.500	
"Quickie Diet"	20	3.000	0-4/S 1-6/S	10	2.825	1-3/N 1-7/S	23	3.250	0-3/N 0-9/S
"Human Nutrition"			3-0/N 5-1/N			1-1/N 4-5/N			2-1/N 3-3/N
"Central Body Core"	25	3.250	5-0/S 7-2/N	3	3.000	1-2/N 4-2/N	20	3.375	5-0/S 7-0/S
"Respiration Meter"	-16	3.825	2-0/N 7-1/S	-11	3.750	1-1/N 4-2/N	- 9	3.500	2-2/N 2-6/N
"Weight Control"	- 3	3.825	0-1/N 4-3/N	- 4	3.375	2-0/N 5-2/N	- 6	3.825	4-1/N 7-1/S
"Calories"	33	3.825	0-0/N 3-4/N	13	3.375	1-1/N 3-2/N	27	3.825	2-1/N 5-2/N
"County Agent"			1-0/N 4-1/N			0-1/N 1-3/N			0-3/N 3-4/N
"Agricultural Research"			0-1/N 3-2/N			1-1/N 3-1/N			3-1/N 3-1/N
"Mich. State University"			0-1/N 1-3/N			1-2/N 1-5/N			0-2/N 3-4/N

Female

	Gp. 1: Urban			Gp. 5: Rural Non-Farm			Gp. 9: Farm		
	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P.v Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts
Total	34	2.500		46	2.500		45	2.250	
"Quickie Diet"	- 4	2.825	0-2/N 0-3/N	2	3.000	0-2/N 1-5/N	-10	2.750	0-6/S 1-8/S
"Human Nutrition"			0-1/N 2-2/N			1-0/N 4-1/N			0-0/N 4-1/N
"Central Body Core"	- 1	3.250	1-0/N 2-2/N	7	3.125	3-0/N 5-2/N	12	3.000	7-0/S 7-0/S
"Respiration Meter"	37	3.250	0-2/N 1-4/N	40	3.125	5-0/S 6-1/S	29	3.000	5-0/S 7-0/S
"Weight Control"	8	2.250	3-0/N 3-2/N	15	2.500	1-0/N 4-2/N	20	2.000	1-0/N 2-1/N
"Calories"	- 6	2.250	2-0/N 2-4/N	-18	2.500	1-3/N 4-5/N	- 6	2.000	0-2/N 2-3/N
"County Agent"			1-1/N 4-4/N			0-0/N 1-2/N			1-1/N 2-1/N
"Agricultural Research"			0-1/N 3-4/N			0-0/N 1-2/N			0-1/N 0-2/N
"Mich. State University"			0-2/N 0-2/N			0-0/N 0-0/N			1-1/N 1-3/N

Female

	Gp. 2: Urban			Gp. 6: Rural Non-Farm			Gp. 10: Farm		
	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts
Total	21	4.250		48	4.000		54	3.500	
"Quickie Diet"	16	4.750	0-2/N 0-5/S	3	3.625	0-1/N 0-6/S	25	3.500	0-2/N 0-4/S
"Human Nutrition"			1-0/N 2-2/N			0-1/N 2-3/N			1-2/N 0-4/S
"Central Body Core"	17	4.825	4-0/S 6-2/N	- 6	3.750	2-2/N 7-2/N	29	3.500	3-0/N 4-4/N
"Respiration Meter"	-24	4.625	2-1/N 3-5/N	45	4.000	2-1/N 3-4/N	-26	3.750	1-3/N 3-4/N
"Weight Control"	-11	4.125	3-0/N 5-1/N	18	4.000	0-1/N 4-2/N	-13	3.500	5-0/S 5-0/S
"Calories"	23	4.125	2-0/N 6-2/N	-12	4.000	3-0/N 4-2/N	39	3.500	3-0/N 7-1/S
"County Agent"			2-1/N 4-1/N			0-4/S 1-4/N			0-0/N 2-1/N
"Agricultural Research"			0-0/N 2-3/N			0-2/N 2-4/N			0-3/N 2-4/N
"Mich. State University"			0-0/N 0-2/N			1-0/N 1-3/N			0-1/N 1-6/S

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*Profile Mean: underlined, (learn-not learn); otherwise, (like-dislike)
No. S. D. Shifts: first digit, "move favorable"; second, "less favorable"; S, significant.
first pair, (1):(9) split; second pair, (1)(2)(4):(6)(8)(9) split.

Table A14

Summary of Data for Sample Program on Soil Tillage*

Male

	Gp. 3: Urban			Gp. 7: Rural Non-Farm			Gp. 11: Farm		
	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts
Total	37	4.250		30	3.825		37	4.825	
"Larger Soil Particles"	12	4.625	7-0/S 9-0/S	9	4.000	3-1/N 3-3/N	12	5.000	3-1/N 5-1/N
"Minimum Soil Tillage"			4-1/N 6-3/N			2-2/N 3-4/N			0-2/N 2-3/N
"Field Weighing Apparatus"	3	4.750	2-0/N 4-0/S	2	4.000	4-1/N 5-1/N	4	5.000	4-1/N 4-4/N
"Experiment Station"	-23	4.125	0-0/N 4-2/N	30	3.825	1-2/N 4-3/N	-25	5.000	2-1/N 5-3/N
"Weed Control"	21	4.375	0-2/N 4-4/N	5	3.825	0-0/N 1-0/N	25	5.000	0-1/N 3-1/N
"Growing Season"	24	3.125	1-1/N 4-3/N	-16	4.000	1-2/N 2-3/N	21	4.000	1-3/N 2-4/N
"County Agent"			2-0/N 2-0/N			2-1/N 5-1/N			2-0/N 2-3/N
"Agricultural Research"			1-0/N 4-2/N			3-0/N 7-2/N			1-1/N 4-3/N
"Mich. State University"			0-0/N 2-2/N			0-1/N 3-2/N			0-0/N 4-0/S

Male

	Gp. 4: Urban			Gp. 8: Rural Non-Farm			Gp. 12: Farm		
	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts
Total	93	2.625		13	2.250		62	1.625	
"Larger Soil Particles"	33	3.500	7-0/S 7-0/S	- 2	2.825	2-2/N 4-3/N	22	1.250	6-0/S 9-0/S
"Minimum Soil Tillage"			3-0/N 7-1/S			0-0/N 3-3/N			1-0/N 3-4/N
"Field Weighing Apparatus"	11	3.500	4-0/S 7-2/N	4	2.500	0-3/N 3-5/N	5	2.750	4-0/N 8-1/S
"Experiment Station"	49	2.750	1-0/N 1-3/N	-14	2.125	1-1/N 3-4/N	26	1.375	0-2/N 2-7/N
"Weed Control"	8	2.500	1-0/N 4-3/N	10	4.000	1-1/N 4-1/N	11	2.825	0-1/N 2-1/N
"Growing Season"	- 8	1.500	1-3/N 2-5/N	15	1.125	2-3/N 4-5/N	- 2	1.000	4-0/S 6-1/S
"County Agent"			1-1/N 2-2/N			2-0/N 5-1/N			3-1/N 5-4/N
"Agricultural Research"			0-0/N 3-0/N			1-1/N 1-4/N			0-3/N 1-6/S
"Mich. State University"			1-0/N 4-2/N			0-1/N 2-4/N			2-2/N 3-5/N

Female

	Gp. 1: Urban			Gp. 5: Rural Non-Farm			Gp. 9: Farm		
	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts
Total	40	3.750		37	3.625		25	4.125	
"Larger Soil Particles"	11	4.000	4-0/S 7-1/S	11	3.375	5-2/N 8-2/N	7	4.375	7-0/S 10-0/S
"Minimum Soil Tillage"			5-0/S 6-1/S			4-0/S 7-1/S			4-0/S 8-0/S
"Field Weighing Apparatus"	1	4.000	3-0/N 6-2/N	2	3.750	3-1/N 5-1/N	4	4.250	6-0/S 6-1/S
"Experiment Station"	-14	4.000	0-0/N 2-3/N	20	3.625	1-1/N 1-2/N	-26	4.750	1-1/N 1-2/N
"Weed Control"	22	3.750	1-3/N 2-6/N	2	3.375	2-1/N 3-2/N	16	4.500	0-0/N 1-0/N
"Growing Season"	20	3.000	1-2/N 3-3/N	2	3.125	1-2/N 3-2/N	24	3.250	1-0/N 4-3/N
"County Agent"			3-1/N 3-3/N			0-0/N 3-1/N			0-0/N 2-2/N
"Agricultural Research"			1-1/N 3-4/N			2-0/N 2-1/N			1-0/N 4-0/S
"Mich. State University"			0-1/N 1-4/N			1-0/N 1-0/N			0-1/N 1-1/N

Female

	Gp. 2: Urban			Gp. 6: Rural Non-Farm			Gp. 10: Farm		
	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts	C. P. Diff.	Profile Mean	No. S. D. Shifts
Total	64	2.625		38	3.000		69	2.825	
"Larger Soil Particles"	24	3.825	6-0/S 6-1/S	5	4.125	6-1/S 7-2/N	25	3.000	4-0/S 6-1/S
"Minimum Soil Tillage"			5-0/S 6-1/S			4-1/N 6-2/N			0-0/N 3-0/N
"Field Weighing Apparatus"	6	3.250	5-0/S 8-0/S	3	4.000	3-2/N 5-2/N	2	3.000	5-1/N 6-1/S
"Experiment Station"	26	2.375	2-0/N 7-1/S	35	2.500	0-0/N 2-1/N	35	3.000	1-1/N 3-2/N
"Weed Control"	7	1.825	1-3/N 4-3/N	- 3	3.000	2-1/N 4-3/N	5	2.500	1-1/N 1-4/N
"Growing Season"	1	1.500	0-1/N 5-8/N	- 2	1.125	1-2/N 4-6/N	- 3	1.825	1-0/N 2-3/N
"County Agent"			3-0/N 7-0/S			3-0/N 5-0/S			2-0/N 3-1/N
"Agricultural Research"			0-0/N 1-2/N			0-0/N 1-2/N			2-2/N 5-3/N
"Mich. State University"			0-0/N 1-3/N			0-0/N 1-2/N			0-0/N 3-5/N

*Profile Mean: underlined, (learn-not learn); otherwise, (like-dislike).
No. S. D. Shifts: first digit, "move favorable"; second, "less favorable"; S, significant.
first pair, (1):(9) split; second pair, (1)(2)(4):(6)(8)(9) split.

Table A15

Variance in Cloze Procedure Difference Scores After Viewing Program on Soil Tillage

Passage: Growing Season

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	.11	1	.11	F = .06 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	.61	1	.61	F = .35 (N.S.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	.11	1	.11	F = .06 (N.S.)	F (1,75) = 3.97
Test Sequence Difference	127.52	1	127.52	F = 73.29 (Sig.)	F (1,75) = 3.97
Within Groups Residual	4.63	3	1.54	F = .88 (N.S.)	F (3.72) = 2.75
Exp. Groups Subtotal	132.99	7	18.99		
Individuals within Groups	125.90	72	1.75		
Grand Mean	74.11	1	74.11	F = 42.35 (Sig.)	F (1,72) = 3.98
Total	258.89	80	3.24		

Table A16

Variance in Cloze Procedure Difference Scores After Viewing Program on Soil Tillage

Passage: Experiment Station

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	9.80	1	9.80	F = 1.49 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	.45	1	.45	F = .07 (N.S.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	6.05	1	6.05	F = .92 (N.S.)	F (1,75) = 3.97
Test Sequence Difference	627.20	1	627.20	F = 95.61 (Sig.)	F (1,75) = 3.97
Within Groups Residual	28.10	3	9.37	F = 1.45 (N.S.)	F (3,72) = 2.75
Exp. Groups Subtotal	671.60	7	95.94		
Individuals within Groups	463.60	72	6.44		
Grand Mean	28.80	1	28.80	F = 4.47 (Sig.)	F (1,72) = 3.98
Total	1135.20	80	14.19		

Table A17

Variance in Cloze Procedure Difference Scores After Viewing Program on Soil Tillage

Passage: Larger Soil Particles

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	2.45	1	2.45	F = .43 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	1.80	1	1.80	F = .32 (N.S.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	.80	1	.80	F = .14 (N.S.)	F (1,75) = 3.97
Test Sequence Difference	48.05	1	48.05	F = 8.42 (Sig.)	F (1,75) = 3.97
Within Groups Residual	3.65	3	1.22	F = .21 (N.S.)	F (3,72) = 2.75
Exp. Groups Subtotal	56.75	7	8.11		
Individuals within Groups	424.80	72	5.90		
Grand Mean	266.45	1	266.45	F = 45.16 (Sig.)	F (1,72) = 3.98
Total	481.55	80	6.02		

Table A18

Variance in Cloze Procedure Difference Scores After Viewing Program on Soil Tillage

Passage: Weed Control

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	.01	1	.01	F = .00 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	2.81	1	2.81	F = .52 (N.S.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	2.81	1	2.81	F = .52 (N.S.)	F (1,75) = 3.97
Test Sequence Difference	35.12	1	35.12	F = 6.50 (Sig.)	F (1,75) = 3.97
Within Groups Residual	.43	3	.14	F = .02 (N.S.)	F (3,72) = 2.75
Exp. Groups Subtotal	41.19	7	5.88		
Individuals within Groups	404.50	72	5.62		
Grand Mean	165.31	1	165.31	F = 29.41 (Sig.)	F (1,72) = 3.98
Total	445.69	80	5.57		

Table A19

Variance in Cloze Procedure Difference Scores After Viewing Program on Soil Tillage

Passage: Field Weighing Apparatus

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	1.25	1	1.25	F = 1.00 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	.45	1	.45	F = .36 (N.S.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	.20	1	.20	F = .16 (N.S.)	F (1,75) = 3.97
Test Sequence Difference	1.80	1	1.80	F = 1.44 (N.S.)	F (1,75) = 3.97
Within Groups Residual	2.90	3	.97	F = .76 (N.S.)	F (3,72) = 2.75
Exp. Groups Subtotal	6.60	7	.94		
Individuals within Groups	91.20	72	1.27		
Grand Mean	16.20	1	16.20	F = 12.76 (Sig.)	F (1,72) = 3.98
Total	97.80	80	1.22		

Table A20

Variance in Cloze Procedure Difference Scores After Viewing Program on Nutrition

Passage: Calories

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	.31	1	.31	F = .11 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	.01	1	.01	F = .00 (N.S.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	9.11	1	9.11	F = 3.10 (N.S.)	F (1,75) = 3.97
Test Sequence Difference	255.62	1	255.62	F = 86.95 (Sig.)	F (1,75) = 3.97
Within Groups Residual	6.73	3	2.24	F = .75 (N.S.)	F (3,72) = 2.73
Exp. Groups Subtotal	271.79	7	38.83		
Individuals within Groups	213.70	72	2.97		
Grand Mean	127.51	1	127.51	F = 42.93 (Sig.)	F (1,72) = 3.98
Total	485.49	80	6.07		

Table A21

Variance in Cloze Procedure Difference Scores After Viewing Program on Nutrition

Passage: Weight Control

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	.11	1	.11	F = .02 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	1.01	1	1.01	F = .21 (N.S.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	3.61	1	3.61	F = .74 (N.S.)	F (1,75) = 3.97
Test Sequence Difference	86.11	1	86.11	F = 17.72 (Sig.)	F (1,75) = 3.97
Within Groups Residual	14.64	3	4.88	F = 1.00 (N.S.)	F (3.72) = 2.73
Exp. Groups Subtotal	105.49	7	15.07		
Individuals within Groups	349.90	72	4.86		
Grand Mean	3.61	1	3.61	F = .74 (N.S.)	F (1,72) = 3.98
Total	455.39	80	5.69		

Table A22

Variance in Cloze Procedure Difference Scores After Viewing Program on Nutrition

Passage: Respiration Meter

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	.61	1	.61	F = .17 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	21.01	1	21.01	F = 5.69 (Sig.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	2.11	1	2.11	F = .57 (N.S.)	F (1,75) = 3.97
Test Sequence Difference	621.62	1	621.62	F = 168.46 (Sig.)	F (1,75) = 3.97
Within Groups Residual	4.93	3	1.64	F = .43 (N.S.)	F (3,72) = 2.73
Exp. Groups Subtotal	650.29	7	92.90		
Individuals within Groups	272.10	72	3.78		
Grand Mean	66.61	1	66.61	F = 17.62 (Sig.)	F (1,72) = 3.98
Total	922.39	80	11.53		

Table A23

Variance in Cloze Procedure Difference Scores After Viewing Program on Nutrition

Passage: Quickie Diet

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	5.00	1	5.00	F = .95 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	10.85	1	10.85	F = 2.07 (N.S.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	2.45	1	2.45	F = .47 (N.S.)	F (1,75) = 3.97
Test Sequence Difference	88.20	1	88.20	F = 16.83 (Sig.)	F (1,75) = 3.97
Within Groups Residual	17.51	3	5.84	F = 1.12 (N.S.)	F (3,72) = 2.73
Exp. Groups Subtotal	124.00	7	17.71		
Individuals within Groups	375.80	72	5.22		
Grand Mean	88.20	1	88.20	F = 16.90 (Sig.)	F (1,72) = 3.98
Total	499.80	80	6.25		

Table A24

Variance in Cloze Procedure Difference Scores After Viewing Program on Nutrition

Passage: Central Body Core

Explanation	Sum of Squares	d.f.	Mean Square	F-Ratio	5% Point
Urban vs. Farm Residence	.80	1	.80	F = .17 (N.S.)	F (1,75) = 3.97
Male vs. Female Sex	.05	1	.05	F = .01 (N.S.)	F (1,75) = 3.97
Urban Female vs. Farm Male Dependence, etc.	22.05	1	22.05	F = 4.69 (Sig.)	F (1,75) = 3.97
Test Sequence Difference	54.45	1	54.45	F = 11.59 (Sig.)	F (1,75) = 3.97
Within Groups Residual	1.45	3	.48	F = .10 (N.S.)	F (3,72) = 2.73
Exp. Groups Subtotal	78.80	7	11.26		
Individuals within Groups	351.00	72	4.88		
Grand Mean	168.20	1	168.20	F = 34.47 (Sig.)	F (1,72) = 3.98
Total	429.80	80	5.37		

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